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ABSTRACT

Cooperative learning is a generic classroom technique that requires students to work and talk together about academic material while learning effective interpersonal skills. This packet, prepared in conjunction with the Minnesota School Effectiveness Program, describes the benefits of cooperative learning and defines its critical attributes, summarizes recent research in this area, and provides suggestions for implementation, selected readings and audiovisuals, and a short bibliography. Instrumentation is also provided for (1) classroom visitations to increase a teacher's skillful and deliberate use of cooperative learning strategies, and (2) school-level assessment of the use of cooperative learning groups. Also included are excerpts from a handbook entitled "Structuring Cooperative Learning Experiences in the Classroom" (Minneapolis: Cooperative Learning Network, 1982), providing samples of cooperative lessons that can be conducted at the primary, intermediate, junior high, and high school levels. Finally, three papers by David W. Johnson and Roger T. Johnson of the University of Minnesota are included: (1) "The Socialization and Achievement Crisis: Are Cooperative Learning Goal Interdependence"; and (3) "Cooperative, Competitive, and Individualistic Goal Interdependence"; and (3) "Cooperative, Competitive, and Individualistic Learning." (TE)

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Minnesota Department of Education
1985

Definition:

Cooperative learning is a generic classroom learning technique which requires students to work and talk together about academic material while learning effective, positive interpersonal skills. In the cooperative classroom, small groups of students (2 to 6 members) can be seen discussing, explaining, and learning together, regular academic subject material. Students also can be seen practicing effective social skill behaviors in their groups: behaviors which are necessary for working effectively with others, for establishing positive friendships with peers, and for maintaining healthy family relationships. Teachers act as advisors while the groups are working; they are available to help students with the lesson and with social skill behaviors.

Cooperative learning has been shown through numerous research studies to improve how students feel about themselves, school, and others. Students in cooperative classrooms develop higher levels of self-esteem, feel more accepted, and feel more cared about by their classmates. Students in the cooperative classroom are more likely to feel that their teachers and their classmates are concerned about their achievement and about them as individuals. School becomes a place where people care about learning and each other.

The acceptance of differences is fostered in the cooperative classroom. Those differences might be handicapped/non-handicapped, ethnic background, socio-economic, or male-female.

Cooperative learning also benefits achievement. There is conclusive evidence that in cooperative learning situations more students achieve at higher levels, and they retain the information longer. This increased achievement and retention is true for all ability levels: low, middle, and high. Talking about their school work rather than quietly completing worksheets gives students an opportunity to be more actively involved and more responsible for their own learning. Cooperative learning has also been shown to facilitate: 1) the mastery of concepts and principles, 2) the application of information to other settings, 3) problem-solving skills, 4) creativity, 5) verbal skills, and 6) the ability to take another person's perspective.

Cooperative learning groups also give students an opportunity to learn how to work with others. A major component of cooperative learning is the development of effective social skills behaviors. The four major social skills areas taught are:

Trust: The ability to share ideas and feelings and the ability to accept and support others

Communication: The ability to send and receive messages clearly and effectively

EA 017 191

Leadership: The ability to complete a task and to maintain effective group relationships

Conflict Resolution: The ability to resolve interpersonal and conceptual conflicts

These social skill behaviors are also necessary for building and maintaining a stable family, a successful career, and long-term friendships.

Cooperative learning groups can have a positive impact in numerous areas: achievement, social skill development, and self-concept. Students of all ability levels benefit from involvement with cooperative learning groups.

Critical Attributes:

Positive interdependence: Groups are structured so that the actions, behaviors, and knowledge of one member affects the actions, behaviors, and knowledge of other group members. This component creates a "we're all in it together" attitude in the groups.

Individual Accountability: Each group member is also held individually accountable for their learning and the learning of other groups membership.

Interpersonal and Groups Skills: Students are taught and practice specific, describable, observable behaviors in the areas of trust, communication, leadership, controversy, and conflict resolution.

Monitoring: To ensure students practice the social skills taught, teachers and/or students take observational data on student interaction during group work. A tally system for specific behaviors is usually used.

Processing: Once the group has completed its task, the group discusses "how" they worked together by identifying specific behaviors they performed which helped the group completes its task and maintains relationships.

Trust: Trust is composed of 1. trusting: the ability to be open and sharing of ideas, opinions, materials, resources, and feelings 2. trustworthy: the ability to be supportive and accepting of other's ideas, opinions, resources, and ideas.

Leadership: Any action which helps the group successfully complete its task while maintaining positive relationships among group members. Leadership is not a person but a set of behaviors.

Communication: The ability to send and receive messages clearly and effectively.

Conflict Resolution: The ability to resolve interpersonal conflicts by choosing one of five styles to appropriately resolve the conflict.

Controversy: A disagreement among students' ideas, opinions, theories, conclusions, and information.

Research Summary

Cooperative group learning refers to the use of small, structured groups of heterogeneous-ability students completing academic tasks together in an interdependent, cooperative environment. Positive interdependence is a social psychological term which means that the goal attainment of one member is positively related to the goal attainment of other members. In other words, the actions and performance of one member of an interdependent group affects the other members of the group. In one cooperative group model, social skill training of students in effective group behaviors is an integral part of the program (Johnson & Johnson, 1983).

A cooperative rather than competitive school environment enhances learning; competition has been found to accentuate individual differences which can be especially deterimental for those with debilitating differences (Ames & Ames, 1978; Ames & Felken, 1979). A copetitive atmosphere promotes a few "winners" and a lot of "losers." Resulting feelings can discourage many from even trying to be successful (Johnson & Johnson, 1975).

The power of peer relationships developed in small groups can also be used to promote academic performance. Peer relationships influence how students feel about school, academic excellence, and the importance of completing homework attending school, and studying. In a cooperative learning group, the peer norms have been found to support successful academic performance, to increase active learning time, and to develop an effective learning climate (Slavin & DeVries, 1979). Other studies suggest self-esteem, mutual concern, greater liking for the subject matter, and great liking for school also occur (Slavin, 1980; Johnson, 1980).

Cooperative group learning is characterized by:

- small (2-6 member) heterogeneous or homogeneous ability groups
- interdependent structure with high individual accountability
- cooperative environment and reward system
- well-structured group tasks
- student support for each other's efforts to achieve
- social skill training so that students have the skills to work effectively in a group
- monitoring and processing of groups members' behaviors

Suggestions for Implementation

1. Contact facilitators for arrangement of on-site training by a consultant.

2. Arrange visits to classrooms of experienced cooperative learning teachers.

3. Arrange "coaching" teams after training is completed of teachers interested in implementing cooperative learning skills. Use classroom visit packet.

4. Run review sessions once every two weeks on specific topics related to cooperative learning. Follow-up coaching should be provided.

5. Distribute one newsletter monthly to each teacher involved in training.

6. Organize an information session for parents to explain the program and benefits of cooperative learning groups.

7. Structure grade level teams to adapt curriculum and to develop support materials for cooperative lesson.

8. Schedule sharing sessions where teachers can exchange ideas, lessons, materials that were successful.

9. Send a team to an awareness session conducted off-site.

READINGS

1. Learning Together and Alone, D. Johnson & R. Johnson

2. "Cooperative Learning: The Power of Positive Goal Interdependence," D. Johnson & R. Johnson

3. "Cooperative, Competitive and Individualistic Learning," D. Johnson & R. Johnson

4. Circles of Learning: Cooperation in the Classroom, D. Johnson, R. Johnson E. Holubec, & P. Roy

5. "Our Link": Cooperative Learning Newsletter, Editor: P. Roy, Vol. 1:1, 2, 3, 4, 5; Vol. 2:1, 2, 3, 4, 5

6. "The Socialization and Achievement Crisis: Are Cooperative Learning Experiences the Solution?" D. Johnson & R. Johnson

7. Cooperative Lesson Plan Handbook, Editor P. Roy

Audio-Visuals

1. Belonging: A 25 minute color film on cooperative learning and mainstreaming. Discussion guide available. Cooperative Learning Center, 202 Pattee Hall, University of Minnesota, Minneapolis, MN 55455

2. Circles of Learning: A 33 minute color film on social skill training in elementary and secondary classrooms. Cooperative Learning Center, 202 Patte Hall, University of Minnesota, Minneapolis, MN 55455

Learning Together and Alone, Johnson, D., & Johnson, R. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1975. ($17.95)

"Cooperative Learning: The Power of Positive Goal Interdependence." Johnson, D., & Johnson, R., Minneapolis, MN: Cooperative Learning Center (202 Pattee Hall, University of Minnesota, Minneapolis, MN 55455). (Free)

"Cooperative, Competitive, and Individualistic Learning." Johnson, D., & Johnson, R. Minneapolis, MN: Cooperative Learning Center (202 Pattee Hall, University of Minnesota, Minneapolis, MN 55455). (Free)

Circles of Learning: Cooperation in the Classroom. Johnson, D., Johnson, R., Holubec, E., & Roy, P. Alexandria, VA: Association for Supervision and Curriculum Development, 1984. ($8.50)

"Our Link: Cooperative Learning Newsletter." Roy, P. (ED.) Minneapolis, MN: Cooperative Learning Center (202 Pattee Hall, University of Minnesota, Minneapolis, MN 55455). Volume I: 1, 2, 3, 4, 5 Volume II: 1, 2, 3, 4, 5. 1982-84 (Free)

"The Socialization and Achievement Crises: Are Cooperative Learning Experiences the Solution?" Johnson, D. & Johnson, R., L. Bickman (Ed.) Applied Social Psychology Annual 4. Beverly Hills, CA: Sage Publications, 1983.

"Cooperative Lesson Plan Handbook" taken from Structuring Cooperative Learning Experiences in the Classroom: The 1982 Handbook. Roy, P. (Ed.) Minneapolis: Cooperative Network Publication, 1982.

Developing Group Skills. Freeman, S., and Mesenburg, R. Waconia, Minnesota: Developing Skills Associates, 1983. ($25.00)

CLASSROOM VISITS

The objective of the classroom visitation is to increase the teacher's skillful and deliberate use of cooperative learning strategies. This is done by specifying the objective for the observation, gathering data during the lesson, and later reflecting back upon the experience and determining what the next steps are to increase the expert use of cooperative learning groups.

The classroom visit is composed of three segments:

1. pre-observation interview between the teacher and the observer
2. the classroom observation
3. a post-observation feedback session

Pre-observation Interview

The objectives of the pre-observation interview are to:

1. orient the observer to the classroom, the task, and the students, and
2. determine which aspect of the lesson the teacher would like to receive feedback on.

It is very difficult for anyone to assess the classroom climate, student behavior and attitude, and instructional technique in one visit. The teacher must be given the opportunity to "fill in" the pertinent background information before the observation starts. For example, it might be useful for the observer to know that it is the beginning of a new unit, a new skill is being taught, or that one particular group has been struggling with working together without put-downs.

In any lesson, there are numerous techniques and behaviors which could be commented upon. To be most effective, the observation and feedback should be focused on a specific aspect of the lesson -- a part on which the teacher currently may be working. If teachers say, "Just tell me how it went," they could receive more information than would be useful. The teacher should specify exactly what should be observed; for example, "Did students understand the positive interdependence in the lesson?" "Did students practice the new behavior?" "Did students participate equally in completing the task?" "Were the critical elements of a cooperative group clearly communicated to students?" Through this pre-observation interview, the observer's task will also become more clear.

The pre-observation interview is important so that both the teacher and the observer are clear about the objective for conducting the observation: improving some instructional aspect of cooperative learning groups.

Critical Attributes Checklist

A checklist is provided as a guide for the observer during the observation; it includes the critical elements of cooperative learning groups. It is important to remember that this observation is not an evaluation but rather the gathering of data that later will be discussed and processed. The observer can also comment upon student behaviors or anecdotal information that the teacher might not have noticed. Immediately after the observation, the teacher and the observer should complete the checklist together.

Post-observation Feedback Session

In the post-observation feedback session, the observer and the teacher together should reflect back upon the collected data and make some conclusions about what happened, what went well, what was effective, and if there were any areas which needed adjustment. First the observer and the teacher complete the checklist together, then they should follow the format on the post-observation feedback sheet to process the data. Remember the classroom visit should be regarded as an experimentation with an instructional technique. It should answer the question: Did the technique work? It is not an evaluation of the teacher.

Another objective of the feedback session is to set a goal for making the class even better in their use of cooperative groups. Based on your mutual discussion, decide what the next step or the next level will be in becoming more skillful with cooperative learning.

Lastly it is not necessary to offer constructive criticism but if it is made it should be followed by a suggestion of an alternative strategy. Use the sentence stems on the feedback sheet for offering constructive criticism.

Critical Attributes Checklist for Cooperative Learning

Teacher's Name _____ Grade Level _____

Date _____ Subject Area _____

This checklist should be completed by the observer and the teacher. They should reach consensus before any item is checked. To complete, check the box which best describes how each attribute was accomplished.

I. GROUP FORMATION

_____ members of group
(number)

_____ Heterogeneous
_____ Homogeneous

Appropriate to:
_____ Age
_____ Student Skill Level
_____ Task

II. GOAL STRUCTURE

_____ Positive Interdependence
_____ Individual Accountability

III. SOCIAL SKILLS

_____ Behaviors Specified _____ Social Skill Taught

_____ _____

_____ _____

IV. OBSERVATION

Teacher Conducted _____ Formal _____ Informal

Student Conducted _____

V. PROCESSING

_____ Teacher Conducted _____ Independent Group Processing

VI. EVALUATION OF STUDENTS' WORK

_____ Norm Referenced
_____ Criteria Referenced
_____ Individual Grade
_____ Group Grade

VII. TEACHER INTERVENTION/INTERACTION

_____ Academic
_____ Social

Post-Observation Feedback Session

EFFECTIVE FEEDBACK:

1. "I" statements: I *(observed, saw, noticed)* when you *(describe action)*.
2. Non-evaluative
3. Be specific, not general
4. Constructive criticism: "I" statement plus alternative

1. _____ was observed on _____.
   (Name) (Date)

2. The topic of the lesson was _____

   _____

   _____.

3. We completed the checklist together. _____

4. Complete some or all of the following sentence stems:

   I observed the way you. . .

   I noticed students . . .

   I learned . . .

   I relearned . . .

   I saw . . .

   I heard . . .

5. We decided that the next step(s) to take in this classroom for more effective use of cooperative learning is/are:

OPTIONAL

6. Areas in the lesson the teacher felt were the strongest. Areas in the lesson the teacher felt could be changed to improve the technique.

7. For constructive criticism complete:

   I noticed *(describe action)*. Another technique to accomplish that is *(describe alternative)*.

SCHOOL-LEVEL ASSESSMENT OF USE OF COOPERATIVE LEARNING GROUPS

The research on school change has stated that for an innovation to have an impact on a whole school and therefore a majority of the student body, a critical mass of the faculty must be involved in the change effort. This should also mean that an asssessment of the quality of implementation should be done on a school level not just the individual teacher level.

The following worksheets can be used to help determine the quality of implementation of cooperative learning on the part of the staff that have been trained.

Data to complete the follow-up description sheet can be found on the critical attributes checklist completed after a classroom observation. Once this data has been assembled, the tally sheet can be used to determine the percentage of times a particular technique is used. This data can be helpful in determining further training or determining next steps. For example, if processing is only conducted 40% of the time, that data might help you determine that the group should focus on discussing and developing processing procedures for their classroom, stress processing during observations, or have some further training in processing.

Classroom Observation Description

Date: _____

School: _____

Based on classroom observation of teachers' use of cooperative groups, check the characteristics which appeared in the lesson.

TEACHERS OBSERVED	Group: Heterogeneous	Group: Homogeneous	Appropriate to: Age	Appropriate to: Student Skill Level	Appropriate to: Task	+ Interdependence	Individual Accountability	Behaviors Specified	Social Skills Taught	Observation: Teacher - Formal	Observation: Teacher - Informal	Observation: Student	Processing: Teacher	Processing: Students	Evaluation: Norm Referenced	Evaluation: Criteria Referenced	Evaluation: Individual Grade	Evaluation: Group Grade	Teacher Interaction: Academic	Teacher Interaction: Social

P. Roy April, 1984

Classroom Observation Description: Tally Sheet

Date: _____

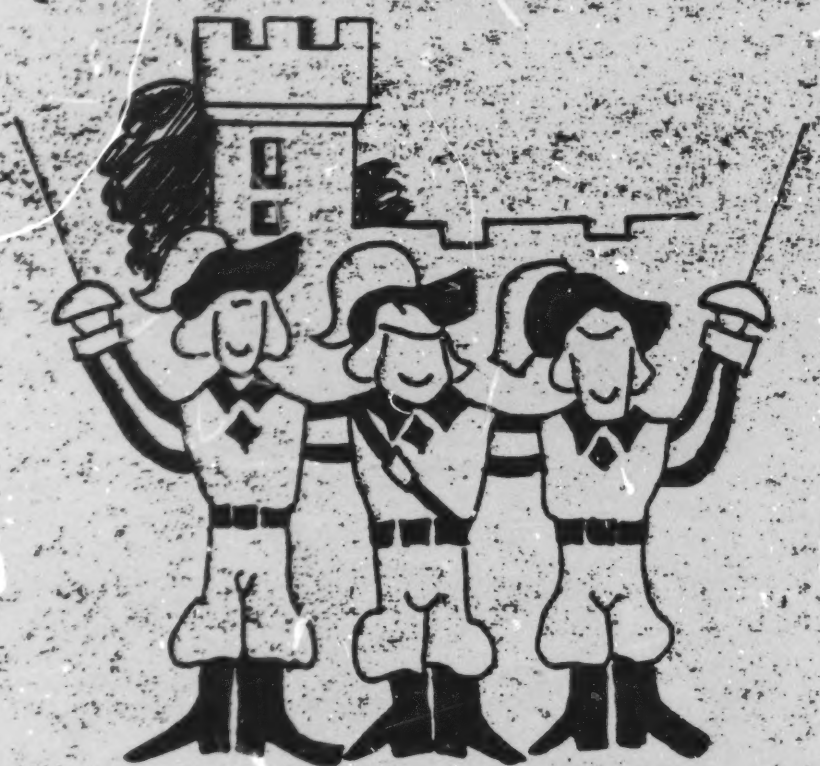
School: _____

Based on classroom observations description sheet, tally how many teachers employed the following characteristics in their cooperative lessons. Based on this information calculate percentage of people implementing these practices.

SKILL	TALLY	TOTAL	PERCENT
Group: Heterogeneous			
Group: Homogeneous			
Appropriate to Age			
Appropriate to Student Skill Level			
Appropriate to Task			
+ Interdependence			
Individual Accountability			
Behaviors Specified			
Social Skills Taught			
Observation: Teacher - Formal			
Observation: Teacher - Informal			
Observation: Student			
Processing: Teacher			
Processing: Student			
Evaluation: Norm-referenced			
Evaluation: Criteria referenced			
Evaluation: Individual grade			
Evaluation: Group grade			
Teacher Interaction: Academic			
Teacher Interaction: Social			

TOTAL NUMBER OF PARTICIPANTS 15

Structuring Cooperative Learning Experiences in the Classroom



Edited by:

Patricia A. Roy

Introduction

This handbook includes sample copies of cooperative lessons which can be conducted in primary grades through high school. The lessons are complete with handouts, observation sheets, role cards, and teacher directions. This detail has been included so that these lessons could be replicated or used as models upon which to adapt your own curriculum.

These lessons have been taken from Structuring Cooperative Learning Experiences in the Classroom: The 1982 Handbook, (1982) Patricia Roy (Ed.), Minneapolis, Minnesota: Cooperative Learning Network. That handbook includes five lessons each in primary, intermediate, junior high, senior high, and college/adult levels as well as introductory articles on cooperative learning, social skill training, and the socialization crisis. Copies of The 1982 Handbook can be purchased from:

Interaction Book Company
162 Windsor Lane
New Brighton, MN 55112

SECTION V

Primary

READING

Louise LaValley
Northfield Elementary School
Northfield, Vermont

BEFORE THE LESSON

Appropriate Grade Level

Grade one

Content Area

Reading

Goal

Practice with rhyming words

Group Size

3 to 4 children in each group

Time Required

30 to 40 minutes

Materials

ITEM	NUMBER NEEDED
Pencils	One per person
Worksheet	One per group

THE LESSON

Procedure

1. Instructional Objectives

   Children will be able to identify and write rhyming words. Children will be able to read the words on the paper and the rhyming words they wrote.

2. Group Size

   3 to 4 children per group. Small groups are better for first graders.

3. Assigning Students to Groups

   The teacher assigns the groups, making sure that there is one good reader, one average reader, and one low reader. In my classroom, we work in cooperative reading groups every morning for 30 to 40 minutes. The cooperative reading groups are set up so they work with the same children for 2 weeks. Consistently, the children know who they are working with and where they are to go.

4. Classroom Arrangement

   The room is arranged so each group is seated around one desk so all can see the materials and can talk to each other easily. The groups are separated from each other.

5. Explaining the Learning Task

Each group is to take the worksheet with the words written on it. Each group is responsible for reading each word and writing a word that rhymes beside it. The rhyming word must be a real word and it must be spelled correctly.

6. Explaining the Goal Structure

A. Means of creating positive interdependence

Each group member is to make sure that everyone in the group understands the task. When the group has finished, everyone signs his or her name, showing that he or she helped, shared, and understood.

B. Behaviors expected or social skill to be stressed

Before the children begin the task, I go over what I will be looking for in the groups and what they mean.

1. Everyone gets a chance to talk.
2. Everyone helps.
3. Everyone listens to one another.
4. Checking to see if everyone agrees.
5. Checking to see if everyone understands.
6. Praising one another.

7. Criteria for Evaluation

As each group finishes, I score the worksheet immediately. I ask each child if he or she helped and how he or she felt about the task. When all the groups are finished, I bring the whole

class back together and we share some of the rhyming words each group came up with. After sharing the words, we share any problems the groups had and what could be done next time to solve the problems.

8. Observers

The teacher is the only observer.

DURING THE LESSON

Monitoring

I move from group to group and listen to what is being said in each group and find out how each group is solving the task. I look for participation by all members, sharing of materials, sharing of ideas, listening to one another, checking one another, and praising one another.

Interventions to Teach Social Skills

I only intervene if necessary. I intervene if I see a group is having problems doing the task. I will review what I want them to do and make sure they understand before I go on. I also intervene if a group is having problems with the cooperative skills. Examples: child who refuses to help, child who hides the paper, child who has hurt feelings, child who is being left out, child

who fools constantly, etc. I stop the group and we define what the problem is and come up with the ways to solve it.

AFTER THE LESSON

Processing the Interaction in the Groups

I often have the children go back into their groups and take a few minutes for each member in the group to say why he or she liked working with the others in the group.

I ask myself the following questions:

1. Did the children name and write rhyming words correctly?
2. Did the children exhibit cooperative skills?
3. What skills were missing?

LaValley

RHYME TIME

CAT	_____	MITTEN	_____	LIKE	_____
RED	_____	ME	_____	POT	_____
MAKE	_____	MAN	_____	BIG	_____
BOAT	_____	DAM	_____	PLAY	_____
BOY	_____	TALL	_____	FEET	_____
FOX	_____	BUG	_____	JAR	_____
BOOK	_____	HEN	_____	JUMP	_____
PIG	_____	RUN	_____	TAX	_____
WET	_____	TED	_____	MOP	_____
HOUSE	_____	RIDE	_____	WELL	_____
DUCK	_____	BEAT	_____	FILL	_____
TEAM	_____	SEE	_____	WIN	_____
BIT	_____	NUT	_____	BREEZE	_____

SIGN HERE: _____ _____

_____ _____

SECTION VI

Intermediate

DICTIONARY SKILL AND SPELLING LESSON

Alice Chase
L. L. Damon School
Hull, Massachusetts

BEFORE THE LESSON

Appropriate Grade Level

Grade 4

Content Area

Language Arts

Goal

To provide practice in the use of the dictionary, spelling, writing, and listening through cooperative group effort.

Group Size

Four students

Time Required

A 30 minute spelling period for 3-4 days

Materials

ITEM	NUMBER NEEDED
Name tags with appropriate Zodiac signs	One per student
Assigned role tags	One per student
Lined paper for sentences	One per student
Spelling worksheets with review words	One per student
Dictionaries*	One per student
Teacher's Observation Sheet	For teacher
Pupil's Observation Sheet	One per group
Paper for Extra Activity	One per student
Test Worksheet **	One per student
Wall Chart	One per room

* Recommended: Thorndike-Barnhart Junior Dictionary (Scott-Foresman & Co., 1970)

** This test for the final session will be developed by the teacher. It will include words used throughout the review sessions and should consist of 20 words and 8 sentences to arrange words in a-b-c order.

THE LESSON

Procedure

1. Instructional Objectives

   A. Students will gain skill in writing spelling words in sentences.

B. Students will gain skill in uses of the dictionary.

C. Students will gain skill in practicing the spelling words.

D. Students will be able to define spelling words.

2. Group Size

4 students per group: this allows for maximum participation by group members and minimizes group process difficulties.

3. Assigning Students to Groups

Children in Grade 4 are interested in astrology. Birthdays have been previously grouped on a wall chart according to the Zodiac signs. Random assignments will be made to groups according to birth sign. Included within each group will be a child with a special need who is being mainstreamed. That child will be the Observer (for one lesson) and also be in charge of points.

A top reader should be included to act as a Summarizer. There should also be two average achievers in each group; these children will act as Encourager and Praiser. After each session, the children will change roles.

4. Classroom Arrangement

Classrooms with portable desks and chairs are necessary; space groups apart from each other. (See diagram on next page)

4. Classroom Arrangement (cont.)

5. Explaining the Learning Task

The teacher explains that each group is to use their dictionaries and spelling list. Each member of the group is to hand in a paper containing 8-9 sentences.

"There should be a paper from each member, not including the Observer. Notice that the spelling words are in alphabetical order. The sentences you write should all start with the same letter. For example: your first spelling word is autumn. A sample sentence could be 'Anne ate apples all autumn.' For each sentence there are 6 tasks:

A. Write complete sentences with end punctuation.

B. Use your dictionaries to find other words to use in your sentences.

C. Write as well as you can on the lined paper.

D. Review the spelling of your words with group members.

E. Check each other's papers to make sure all words are spelled correctly and sign everyone's paper.

F. Underline the spelling word.

The lesson will take from three to four days. After your group has decided on the best order of words, each member must practice writing the sentences. Remember that all members must agree before you write out the sentence.

You should check each other's papers, making sure all answers are correct. When you are satisfied, place your names on each paper in the upper left corner. Your own heading should be on the paper. Remember that you write 8-9 sentences per day.

When all group members are finished each day, one member is to collect the papers, including the observer's sheet and place them in a special folder. Remember that your signature on each paper shows that you are pleased with the results of your group."

6. Explaining the Goal Structure

A. Means of creating positive interdependence

"Today we will work cooperatively. No one will be finished until all members of the group have completed the eight or nine sentences assigned for each day. The group will receive bonus points based on the total words spelled correctly by the group on the written test. Each person will also receive an individual grade on his test. In addition, each group will receive 1 point for each

word in a sentence. It is important for you to remember that the group grade and the individual test grade can be high only if the group cooperates in the learning of its members."

B. Behaviors expected or skills to be stressed

"Each day you will take turns being the observer, the encourager, the praiser, or the one who summarizes. Remember to express your ideas and don't change your mind unless information or common sense tells you to do so.

There are 4 skills on the observation sheet that you should make sure to practice today:

i. contributing information
ii. checking information and spelling
iii. asking for help
iv. giving help

EXTRA: While you're waiting (if you finish early), try setting up the alphabet in the order of its rhyming letters. Begin with A and write after it, J. See if you can find the other letters which rhyme with it. Remember that some letters have no rhyming partners."

7. Criteria for Evaluation

Administer a test when the sentences have been completed. Grade the individual papers. These are students' individual test grades. Bonus points will be rewarded based on the total

number of words correctly spelled by the group.

8. Observers and Observation Sheet

The observer for each group will initially be chosen by the teacher. The observation sheet is given out at the beginning of each session. The observer does not participate in the group action but records the action as seen. At the end of the session, the observer discusses her/his observations with the group and discusses with the group those things that worked well and those which did not.

DURING THE LESSON

Monitoring

Teacher observes each group for short periods of time and records on the Teacher Observation Sheet. Try to turn problems back to the group to see if they can solve them.

Interventions to Teach Social Skills

The group may have a problem understanding the meaning and use of some spelling words. The teacher can intervene to point out the part of speech as labeled in the dictionary. If the group needs further help, the teacher can intervene to teach needed spelling skills. While students are doing

the initial work of locating and defining the words, notice those students who work fast and finish quickly. Remind them of their responsibility to other members in the group.

AFTER THE LESSON

Processing the Interaction in the Groups

After the papers are collected, call the students back to a large group. Ask "What went well?"; "What didn't go well?"; "What changes could your group make in order to be able to work better?" The questions asked would include such questions as:

1. What happened in your group that helped the group work well together?
2. What happened in your group that was not helpful to getting the work done?
3. What did you do when someone did not understand what was happening?
4. What did you do when someone in your group disagreed with you?
5. What did people in your group do that made you feel bad?
6. What did people in your group do that made you feel good?

Chase

NAME TAGS

191

Taurus

Bull

Aries

Ram

Pisces

Fishes

Aquarius

Water bearer

Capricornus

Goat

Sagittarius

Archer

34

35

Chase

NAME TAGS

192

Scorpius

Scorpion

Libra

Scales

Virgo

Virgin

Leo

Lion

Cancer

Gemini

Twins

36

37

Encourager

Summarizer

193

Observer

Praiser

38

Role Tags

Chase

39

Chase

SAMPLE SPELLING WORKSHEET

autumn

banana

carefully

dismal

expensive

frantically

gorgeous

handles

inn

joyously

keenly

lovely

mad

notebook

onlookers

patiently

quietly

rapidly

silently

turtle

umbrella

victory

watchful

whack

X-ray

yawn

zebra

40

SAMPLE ALPHABET SENTENCE LIST

Ann ate apples all autumn.

Benji brought buttered banana bread.

Carrie carried chocolate cake carefully.

Don drove Dorothy down dangerous, dismal drives.

Esther eats expensive Easter eggs endlessly.

Frank filleted fresh fish frantically for fast freezing.

Good grapes grow gorgeous gradually.

How handily Harvey handles his hot hamburger!

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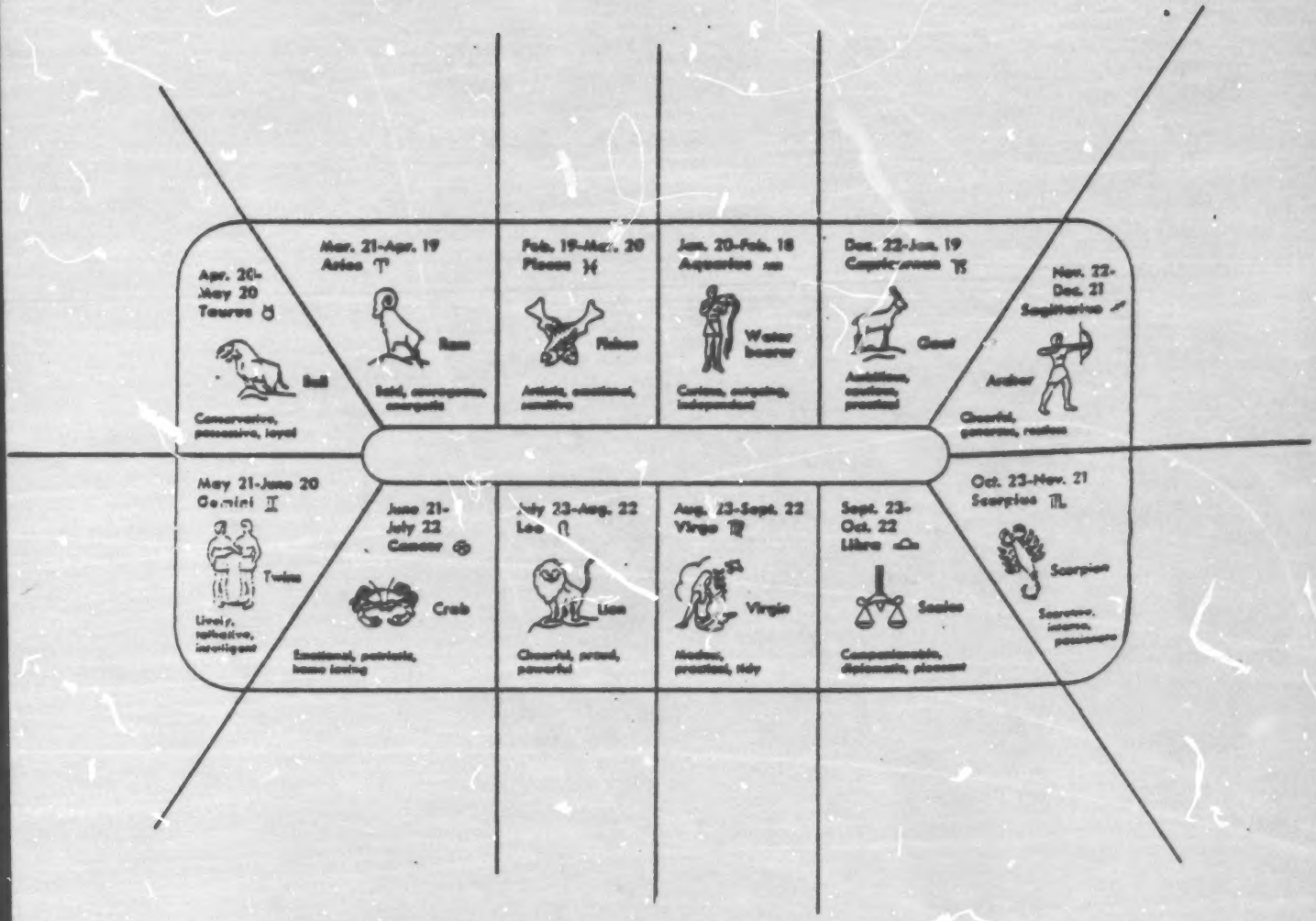
Chase

** THIS PAGE MAY BE HELPFUL IN BUILDING THE WALL CHART **



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PUPIL OBSERVATION SHEET

NAMES OF GROUP MEMBERS	GIVES INFORMA.	CHECKS OUT INFORMA.	ASKS FOR HELP	GIVES HELP

TEACHER OBSERVATION SHEET

DATE _____

GROUPS	OBSERVATION	INTERVENTION	COMMENTS

SECTION VII

Junior High

THE JUTES, ANGLES AND SAXONS INVADE BRITAIN

Chuck Jordan
Grant Road School
Regina, Saskatchewan, Canada

BEFORE THE LESSON

Appropriate Grade Level

Grade eight

Content Area

History

Goal

The general overall goal for this lesson is to learn why the Jutes, Angles and Saxons invaded Britain and what customs and ideas they brought with them.

Group Size

3 students per group

Time Required

Three forty-five minute class periods

Jordan

Materials

ITEM	NUMBER NEEDED
Text: Canada's Heritage by Alex A. Cameron, J.M. Dent and Sons, Ltd., Toronto, Canada	One per student
Mimeographed notes and maps	1 set per student
Question sheet	One per group

THE LESSON

Procedure

1. Instructional Objective

   After doing the readings and the assignment, the students will know why the Romans left Britain, where the Jutes, Angles and Saxons settled, what form of religion they had and their form of government.

2. Group Size

   Students will be placed in groups of three because this is their first exposure to cooperative learning.

3. Assigning Students to Groups

   Groups will be teacher-assigned. Assignment will be based on sociometric. There will be at least one person in the group

that each student likes to work with.

4. Classroom Arrangement

Students will arrange desks in triads as far away from other groups as possible.

5. Explaining the Learning Task

Students are to read "individually" in Canada's Heritage pages 8, 9, and 10 on the Anglo-Saxon Conquest and the mimeographed notes on "The Second Invasion". One question sheet per group will then be passed out and cooperatively the group will answer the questions. Each group will produce one set of answers to the questions.

6. Explaining the Goal Structure

A. Means of creating positive interdependence

For this assignment they will be given a group mark based on answers to questions. The group must come to an agreement on the answers and sign the answer sheet which means that they agree on the answers, and they know the answers to the questions.

B. Behaviors expected or social skill that will be stressed

The skill to be worked on in this lesson is that all group members will contribute their ideas and stay on task. The teacher will act as the observer and will spend 5-10 minutes at each group collecting data on an observation sheet. The teacher will also appoint one person to read the questions.

7. Criteria for Evaluation

Each group member is to know the answers to the questions and if the teacher were to ask any group member a question, he/she would know the answer. The group answers will be turned in after two class periods.

8. Observers and Observation Sheets

The teacher will act as observer and use the observation sheet included at the end of the lesson. Each group would be given the observation sheet after the two lessons and allowed to draw conclusions and discuss how to improve their skills.

DURING THE LESSON

Monitoring

The teacher will move from group to group and act as observer. The teacher should visit each group at least twice over the two lessons. Besides using the observation sheet, the teacher should write notes so that feedback can be given to groups. Comments could be written on the observation sheet.

Interventions to Teach Social Skills

Interventions would be made only in the case where a group appears to be off task or if one person appears to be doing all the work.

By randomly asking one person to answer a question, the need for everyone to participate will be highlighted.

AFTER THE LESSON

Processing the Interaction in the Groups

The teacher will give each group their observation sheet and ask them, from the data collected, to write down one comment about "What went well in your group" and one comment about "What didn't go well in your group". These comments are to be written on the observation sheet and handed in. In processing, the teacher must make the group aware that they are providing feedback to other group members.

The teacher might pose questions like: "What do you do when you have a group member who didn't contribute ideas?"

The Second Migration

The Romans had chosen the Rhine and Danube Rivers as the eastern and northern extremity of their Empire. Semi-civilized Germanic tribes (the Teutons) lived in the lands (now Germany) to the east and north of the rivers. These tribes included the Angles, Saxons, Jutes, Franks, Burgundians, Vandals, Visigoths, and Ostrogoths. Further to the northeast (now Russia) dwelt fierce Mongolian tribesmen called Huns, who were savage and warlike. During the 300's the Huns began to sweep into Europe raiding the farther peaceful Germanic tribes. So cruel and fierce were these invaders that they forced the Germanic tribes to seek refuge on the Roman side of the rivers. It might be expected that the highly civilized Romans could easily repel the the attempts of the Germanic tribes to settle in their territory, but the once mighty Roman Empire was able to do little in stopping the Germanic hordes and they poured over the rivers and seized lands throughout all of western Europe. In 410 A.D. the Visigoths even captured and sacked the city of Rome and in 476 A.D. Odoacer, one of the Germanic leaders overthrew the last West Roman Emperor. This ended the West Roman Empire and western Europe was plunged into the Dark Ages. The East Roman Empire, known as the Byzantine Empire, lasted another thousand years.

Jutes, Angles, and Saxons

When the Roman legions left Britain to defend the heart of their Empire against Germanic tribes, other Germanic tribes in the north seized the opportunity to invade Britain. The first to arrive were the Jutes from Denmark. At the same time the unfortunate Britons were being overrun by barbarous Picts and Scots from the northern part of the island. In their plight the Britons made pathetic appeals to Rome for assistance, but, of course, the Romans could send no help. (The letters asking for help are known as "The Groans of the Britons".) In their desperation it seemed a good idea to the Britons to set one invader against the other, and so the Jutes were invited to drive the Picts and Scots from the land. However, after the Jutes had driven the Picts and Scots northward, they showed no intention of leaving. Indeed, they were soon joined by hordes of other Germanic tribes - the Angles and Saxons from northern Germany.

During the 150 years from 450-600 A.D. wave after wave of these invaders arrived and half the island was overrun. As they settled, several bands formed together under a military chief. There was much battling with each other and finally seven kingdoms were formed. Of these, the chief powers were Wessex, Mercia and Northumbria. The three main kingdoms continued to fight each other and finally in 829, King Egbert of Wessex compelled the other kingdoms to accept his leadership; so in reality he became the first king of all Angle-land or England.

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Jordan

Many of the Britons were forced back into the hilly country to the west and north. Some remained, to serve their conquerors as slaves, and in time to intermarry with them. The newcomers began to replace the highly civilized culture introduced by the Romans with their semi-barbarian customs. It was like turning the hands of the clock back a thousand years. England, too, was plunged into the Dark Ages.

FIGURE 1

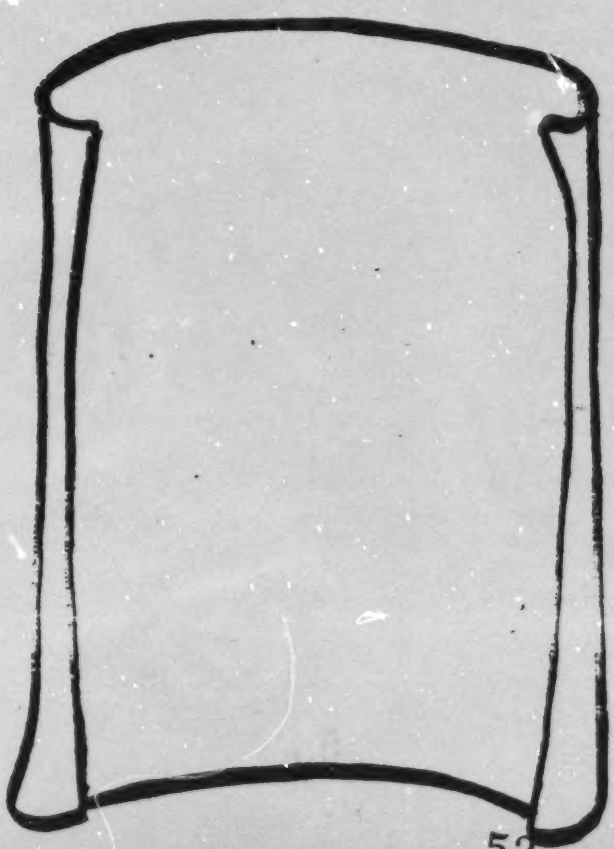

FIGURE 2:
THE GROAN OF
THE BRITAINS

Question Sheet

1a. Why did the Roman legions withdraw from Britain and why was this a sad day for the people?

1b. Compose a letter such as the Britons might have sent to Rome stating their situation and asking for help. Print the letter in the space provided on the preceding page.

2. Indicate on the map (Figure 1):
   a) the mainland home of the Jutes, the Angles, and the Saxons;
   b) the areas in England where each group settled.

3a. Write a brief description of the religion of the Anglo-Saxons.

3b. Briefly tell how Christianity was introduced into Britain.

4. The Anglo-Saxons developed the idea that people should have a share in government. Briefly describe their form of government.

5. Why was King Ebert known as the first King of England?

Jordan

OBSERVATION SHEET

NAMES:			
CONTRIBUTING IDEAS			
REMAINING ON TASK			

COMMENTS:

SECTION VIII

Senior High

BASIC VOCABULARY LESSON IN ECONOMICS

Sara Cowen
Elgin High School
Elgin, Illinois

BEFORE THE LESSON

Appropriate Grade Level

High School (especially for Learning Disabled)

Content Area

Economics

Goal

To introduce and provide application experiences with basic economic terms, and to evolve a definition of economics based on these terms.

Group Size

Four members

Time Required

From two to three class sessions, depending on how rapidly the students work.

Materials

ITEM	NUMBER NEEDED
List of economic terms	One per student
Application Exercise	One per group
Large poster board	One per group
Magazines	Several per group
Observation Sheet	One per student
Student Checklist	One per student
Set of role cards	One per group
Quiz	One per student

THE LESSON

Procedure

The following lesson is written for students with learning disabilities. Because such students are easily overloaded when presented vocabulary lessons, two exercises involving application of the new terms are suggested before attempting to teach any additional words.

1. Instructional Objectives

   A. The teacher will introduce the subject of economics and a basic vocabulary using a discussion format. Students will follow the discussion with the aid of a handout. They will not need to take notes so they can contribute to the discus-

sion by relating the vocabulary words to their own experience.

B. Students will then discuss, in cooperative groups, the best way to answer exercises which require application of the terms.

C. Students in cooperative groups will make posters for classroom bulletin boards which require understanding and application of the terms. A spokesman for each group will explain each illustration on the posters when they are put up on the bulletin boards.

D. Students will separate to take a quiz over the new terms.

2. Group Size

Since this is a first experience in cooperative learning, group size will be small. Groups of four members will have three students actively working together while one observes.

3. Assigning Students to Groups

Students will be chosen at random for the groups. As they enter the room, they will be given a number. All the "ones" make up one group, all the "twos" another group, etc.

4. Classroom Arrangement

The students sit at round tables separated as far from each other as possible.

5. Explaining the Learning Task

Explain to the groups that economics has a language all its own.

In order to discuss the subject they must learn new meanings for some familiar words and learn some entirely new words. Referring to the handout given to each student, explain each term and encourage the students to relate each word to their personal knowledge. Build the discussion by encouraging use of the new words to define words further down the list until an adequate vocabulary exists to define economics.

When the students feel comfortable with the vocabulary, explain that they now have two exercises to complete which will indicate how well they understand their new vocabulary. First, as a group, they will answer the exercises on the sheet given each group. They must choose a recorder to write their answers. Next, they will make a poster which illustrates certain words. They must choose a narrator to explain the poster to the entire class when they put it on the bulletin board. On completion of both exercises, each student will take a quiz on his/her ability to apply the words in various ways.

6. Explaining the Goal Structure

A. Means of creating positive interdependence

Explain to the students that through cooperative learning they help one another to more thoroughly understand and use the new words. All students will receive the same grade as their group on the two exercises. Grades will be based on their accurate use and application of the words they are

learning.

On the written exercise, the group must agree on each answer before the recorder hands it in. No errors will be an A, 1 error a B, 2-3 errors a C, 4-5 errors a D, 6 errors or more an E. The group must also agree on the illustration on the poster and on the explanation their narrator presents. The grading scale on the poster will be the same as on the exercise. These two grades will be averaged with the individual quiz grades for the final lesson grade. Emphasize that the students are to help one another understand and apply the new vocabulary in an economic context.

B. Behaviors expected or social skill to be stressed

1. Observer: records the actions of each group member on an observation sheet; does not participate in the group discussion while observing
2. Encourager of Participation: in a friendly way encourages members of the group to contribute to the discussion
3. Praiser: praises group members for their contributions, indicates support for or acceptance of various contributions
4. Summarizer: restates ideas and feelings expressed by group members when it is appropriate

Students shuffle the role cards and deal them out so that roles are assigned randomly. They are told that while it is important to make contributions in keeping with their role,

any contribution which promotes cooperation is encouraged. Roles are changed with every class session.

7. Criteria for Evaluation

Score the exercises and the individual quizzes. Give each student his final grade.

8. Observers and Observation Sheet

Since this a first lesson, explain that basically the observers and the teacher will be watching for behavior that is indicated on the observation sheet. Point out that each person should, at some point, demonstrate all the behaviors, but that they each must put forth special effort to contribute in the role they have been assigned.

DURING THE LESSON

Monitoring

Move from group to group observing the ability of the group to stay on task and perform the required work. Occasionally ask a student why he feels a certain group answer is correct or the reason he chose an illustration for the poster. Take notes on individual behavior that is especially helpful to the group to mention as feedback later. Try to restructure situations to tone down a

dominator or include a non-participator.

Interventions to Teach Social Skills

Students often tend to learn too narrow a definition for vocabulary words. For instance, in Exercise 5 on the Application Sheet, they may correctly identify oil as a land resource. But they should also realize that oil in a processing plant that produces gasoline is capital. Since there are several areas in the exercises where more than one answer is correct, they should be encouraged to discover them.

AFTER THE LESSON

Processing the Interaction in the Groups

During the last 10 minutes of each class period, have the students fill out their checklists. Then discuss the observation sheets. Have them note both individual and group strengths. Encourage them to air their feelings about the cooperative learning structure, both good and bad. Then discuss ways they could cooperate better in the future.

LESSON ONE: Economic Terms

TERM	DEFINITION
WANTS	These are things people want.
UNLIMITED WANTS	People always want more than they can have. Their wants are never satisfied; they are unlimited.
DEMAND	Things people want are the things they demand. Demand for a product helps determine what goods will be produced.
GOODS	Anything produced we can feel or touch. Example: clothing, cars
CAPITAL GOODS	The machines or tools used to produce something. Example: steel used to produce a car
CONSUMER GOODS	The final product that the consumer uses or consumes. Example: a car which you buy
SERVICES	Work which produces things we cannot feel or touch. Example: doctor, teacher, auto mechanic
RESOURCES	The things people turn into goods and services. The <u>three basic resources</u> of an economy are: 1. land (natural resources) 2. labor 3. capital (tools or machines used for production)
SCARCE RESOURCES	Resources are limited or scarce. Land, labor, and capital are limited or scarce. We use scarce resources to satisfy our unlimited wants.
ECONOMICS	The study of how people use their scarce resources to satisfy their unlimited wants.

LESSON ONE: APPLICATION EXERCISE

1. Is there a nation in the world today which does not face a problem with scarce resources? Name one.

   Is there a person in the world today who will not have a problem with scarce resources? Name one.

2. Does everyone have unlimited wants? Why or why not?

3. Economists differentiate between goods and services. How could each of the following be classified:

   a. a car
   b. a haircut
   c. a doctor's visit
   d. a fishing rod
   e. medicine
   f. hair tonic

4. Economists also differentiate between capital goods and consumer goods. How would each of the following be classified:

   a. road grader
   b. wrist watch
   c. radio
   d. sweater
   e. desk

5. There are three basic resources: land, labor, capital. Classify each of the following resources:

   a. a hoe
   b. oil

5. Classify resources (cont.)

   c. factory building
   d. factory machinery
   e. secretary
   f. fish
   g. pencil
   h. factory worker

6. Fill in the blanks in the following definition of economics:

   Economics is the study of how people use their _____ _____ to satisfy their _____ _____.

APPLICATION EXERCISE TWO

1. Make a poster illustrating capital goods versus consumer goods.

or

2. Make a poster illustrating the three basic resources: land, labor, capital.

LESSON ONE: QUIZ

1. *(10 points)* Using the terms unlimited wants and scarce resources, write a definition of economics.

2. *(18 points)* Classify each of the following as a good or a service:

   a. automobile tune-up
   b. dental check-up
   c. television set
   d. washing machine
   e. typewriter
   f. paper

3. *(18 points)* Classify each of the following resources as land, labor, or capital:

   a. tractor
   b. dishwasher
   c. coal
   d. sewing machine
   e. truck
   f. water

4. *(24 points)* Fill in the blanks with words from the list below:

unlimited goods	scarce resources	demand
goods	capital goods	consumer goods
	services	

People always have _____. The fact that people always want more than they can have creates a _____ for goods and _____. Products such as cars and houses are called _____.

4. Fill in the blanks (cont.):

Products like steel and wood which are used to make cars and houses are called _____. Because _____ and _____ are made from _____, we can never produce enough to satisfy everyone.

5. *(10 points)* Why do people have unlimited wants?

6. *(10 points)* Why are resources scarce?

7. *(10 points)* Name a job you have or have had. Do you produce goods or services?

OBSERVATION SHEET

NAME _____

Cowen DAY	Contributes Ideas	Expresses Support Acceptance, Praise	Encourages Others to Contribute	Summarizes	Coordinates Members' Efforts	

307

69

63

OBSERVER

records the actions of each group member on an observation sheet; does not participate in the group discussion while observing.

ENCOURAGER of PARTICIPATION

in a friendly way encourages members of the group to contribute to the discussion.

PRAISER

praises group members for their contributions; indicates support for or acceptance of various contributions.

SUMMARIZER

restates ideas and feelings expressed by group members when it is appropriate.

Cowen

STUDENT CHECKLIST: Cooperation

Name _____ Group _____

Date _____

_____ 1. I contributed my ideas and information.

_____ 2. I asked others for their ideas and information.

_____ 3. I summarized all our ideas and information.

_____ 4. I shared my materials.

_____ 5. I asked for help when I needed it.

_____ 6. I helped the other members of my group learn.

_____ 7. I made sure everyone in my group understood how to do the school work we were studying.

_____ 8. I helped keep the group studying.

_____ 9. I included everyone in our work.

WRITING A CHARACTER ANALYSIS

Beverly Larson
Forest Lake Senior High School
Forest Lake, Minnesota

BEFORE THE LESSON

Appropriate Grade Level

10th to 12th grade English

Content Area

Literature Interpretation

Goal

To teach students character analysis

Group Size

Groups should have at least four members, but not more than five.

Time Required

Two 55 minute periods for group work plus one 55 minute period for teacher presentation and reading the story.

Larson

Materials

ITEM	NUMBER NEEDED
Characterization Worksheet	One per pupil
Thurber: Secret Life of Walter Mitty*	One class set

* NOTE: Any other suitable short story may be substituted.

THE LESSON

Procedure

1. Instructional Objectives

   A. Each student will learn to recognize specific methods of character development.

   B. Each student will be able to write a character analysis.

   C. Each student will practice and gain skill working cooperatively in a group.

2. Group Size

   There should be at least four students of various abilities in each group to promote good discussion and to aid in the understanding of the lesson.

3. Assigning Students to Groups

   Each student will previously have been assigned to a base group

which consists of at least one high ability student (green), one high-average student (blue), one average-low student (orange), and one low ability or learning disabled student (red). These base groups have been assigned by the teacher to insure heterogeneity. Each student will have a color code to facilitate making individual assignments.

4. Classroom Arrangement

Each group will arrange itself so that two desks are facing and touching two other desks, thus forming a square. A fifth desk may be placed perpendicular to these desks, also facing inward. This arrangement promotes eye contact, a feeling of closeness, and enables students to easily hear one another.

5. Explaining the Learning Tasks

DAY 1: Teacher presentation on characterization (see six points on worksheet) and reads (or has someone read) the story aloud in class.

DAY 2: Teacher distributes worksheets and makes the following assignment:

"Yesterday we read the story 'The Secret Life of Walter Mitty' and discussed ways an author develops a character. Today you will begin to analyze character development using this worksheet. Each of you will be responsible for researching part of the assignment and sharing this with your group. Those students who have a green color

will do questions 1 and 2, red - question 3, orange - question 4 and blue - questions 5 and 6. Some of you have only one question because it will require a longer answer.

You will have fifteen minutes to take notes on your question. You may only use your book. After fifteen minutes you will get into your base group and share your information with each other. You should take notes on all questions, based on your discussion. You may add ideas or opinions that another member may have missed. You should complete the notes for all six questions today."

DAY 3: "Yesterday you completed your notes on the six questions about Walter Mitty. Today you will develop those notes into six good paragraphs, using complete sentences, correct spelling, punctuation, capitalization, etc. This will be your rough draft. When the rough draft is completed, have at least two members of your group proofread it, making and explaining all corrections. Both proofreaders must sign their names at the bottom of your paper. Write a final copy of your character analysis; you may want someone to proofread this also."

6. Explaining the Goal Structure

DAY 1: Teacher presentation; individual goal structure

DAY 2: "I would like to introduce a new skill today. Let's take a look at this poster. It says, 'A summarizer pulls together related ideas and restates the major points discussed.' I would like you to practice doing this in your group. You might use phrases like this to summarize: 'What we've said so far in this discussion is ...' or 'We seem to have decided that ...' I'll put this poster on the front board so you may refer to it if you need to.

This is the way you will work cooperatively in your group for this assignment. Starting with question 1, share the information you have. Other members should take notes and encourage others to add ideas and opinions. The student assigned to question 1 will then summarize all that has been said. Check for agreement among members. Move on to question 2 and do it in the same way.

I will be the observer and will be looking for these skills: asking for clarification, praising, and summarizing."

I would also put the following information on the board:

- Research question - 15 minutes
- Share information with group
- Take notes
- Add your ideas

- Summarize
- Ask for help when needed
- Finish all six questions

DAY 3: "You will receive both an individual grade and a group grade on this assignment, so it is important that you make sure everyone has all the necessary information and that you do a careful job of proofreading."

I would also put the following information on the board:

- Write a paragraph for each question
- Use good mechanics
- Proofread and sign (2)
- Write final copy
- Turn in notes, rough draft, and final copy (each member

7. Criteria for Evaluation

A well-written paper with no mechanical errors will receive an A+, one error an A, two errors an A-, and so forth. Students will receive an individual grade and a group grade. They will receive a check (✓) grade for the notes and the rough draft.

8. Observer and Observation Sheet

I will be the observer for this lesson because I want everyone to experience the actual writing of a character analysis. I will use the anecdotal observation technique. Approximately

ten minutes before the end of the hour I will begin processing. Some groups will be finishing earlier than others, so I will begin with those. I will ask each person to tell another person something he or she did that contributed to the group's work. I will then tell them what I saw and praise any good things I saw or heard. I will ask them what they thought they did well today, and what they think they should work on for tomorrow. They will record in their notebooks the skill they need to improve for next time. They may then quietly visit within their group as I continue to process.

DURING THE LESSON

Monitoring

Teacher's anecdotal observation

Interventions to Teach Social Skills

Since summarizing is a new skill, the teacher may need to intervene to help students understand what they should do. You might also intervene if members are relying only on the information each member gathered rather than contributions from other members.

AFTER THE LESSON

Processing the Interaction in the Groups

1. Teacher feedback on social skills

   During the processing I would make statements such as:

   - "Sara, I heard you give an excellent summary of what the group thought Walter Mitty looked like."
   - "John, you did a good job of keeping everyone on task."

2. Student processing of interaction within the groups

   During the processing I would ask students questions such as:

   - "John, tell Sara what she did today that really helped your group."
   - "Kelly, how did Mike contribuce to the discussion?"
   - "What skill do you think your group did very well today?"
   - "What could your group do to make it work better tomorrow?"

Larson

NAME _____

GROUP _____

CHARACTERIZATION:
Walter Mitty

1. A writer tells what a character looks like. Although Thurber doesn't specifically describe what Mitty looks like, he gives an impression of Mitty's appearance. As a group, decide what Mitty looks like. (Height, weight, clothes, facial features, etc.)

2. A character is placed in a setting. Mitty is placed in the setting of "going to Waterbury" to show certain aspects of his personality. What aspects of his personality does this reveal?

3. A character's behavior is described. Mitty's behavior is described when he is parking his car. What do we learn about Mitty by his actions in this situation? What other behaviors give us clues about his personality?

NAME _____

4. A character's thoughts, reactions, likes, and dislikes are revealed. Mitty's character is further revealed when we are told his thoughts (daydreams). What do these thoughts reveal about Mitty?

5. An author tells how other characters react to the main character. At what point in the story does a woman (other than his wife) react to Walter Mitty? What does her reaction tell us about Mitty?

6. Other characters are developed, some in contrast to the main character. The personality of Mrs. Mitty is developed in contrast to Walter Mitty. Contrast these two characters.

The Socialization and Achievement Crisis: Are Cooperative Learning Experiences the Solution?

David W. Johnson and Roger T. Johnson
University of Minnesota
202 Pattee Hall
Minneapolis, Minnesota 55455

Taken from: L. Bickman (ed.)
Applied Social Psychology Annual 4
Beverly Hills, CA: Sage Publications, 1983.

August, 1983

DAVID W. JOHNSON
ROGER T. JOHNSON

5

THE SOCIALIZATION AND ACHIEVEMENT CRISES: ARE COOPERATIVE LEARNING EXPERIENCES THE SOLUTION?

> It is essentially the experience, the means, that fits human beings not to their external environment so much as to one another. Without the cooperation of its members society cannot survive, and the society of man has survived because the cooperativeness of its members made survival possible—it was not an advantageous individual here and there who did so, but the group. In human societies the individuals who are most likely to survive are those who are best enabled to do so by their group.
>
> —Ashley Montagu (1965)

PRESENT EDUCATIONAL PARADOXES AND SOCIAL PSYCHOLOGY

We are brothers who have been involved with each other and with education all our lives. We are a year-and-a-half apart in age and have learned a great deal from each other about competition, cooperation, and going it alone (individualistically). One of us became a social psychologist interested in social interaction, socialization, and social development, and the other became an educator interested in instructional methods. Since the late 1960s, when we were brought together from the East and West Coasts to the University of Minnesota, we have set aside battles over "who sat by the window in the car last" and "who has the larger glass of lemonade" and have worked cooperatively. We are now both social psychologists and educators. After ten years of collaborating on the systematic study and application of cooperative, competitive, and individualistic learning situations, we welcomed the chance to summarize the results of our efforts. What follows is not an exhaustive survey of current knowledge but rather a summary look at

what our efforts have wrought. Our mother believes that after years and years of intense rivalry and fighting, any topic that can get the two of us to collaborate must be important. We agree. After reading this chapter we hope that you will agree also.

Given that the primary responsibilities of education are learning and socialization, and that both learning and socialization are inherent social processes (Johnson, 1979), there are two current educational paradoxes that directly relate to social psychology and to the systematic and appropriate use of cooperative, competitive, and individualistic learning situations:

(1) Our society is filled with alienated children, teenagers, and young adults yet within schools competitive and individualistic efforts are emphasized; students are isolated from and pitted against each other in these large, bureaucratic, and impersonal schools. Our society is in a socialization crisis where many children, teenagers, and young adults are deprived of and may have never experienced the caring and committed relationships needed for effective socialization and healthy cognitive and social development.

(2) Our economic system is based on the quality of our work force, yet our schools are dominated by instructional procedures that research indicates are less effective in promoting the achievement, positive attitudes toward science and math, and technological literacy needed for a productive population. Our society is in an achievement crisis where our children and teenagers focus on the superficial learning of facts and avoid the science and math courses and careers that would promote their scientific and technological literacy, both of which have serious consequences for an informed citizenry and for the quality and productivity of our labor force.

This is a period of educational history suffering from a discrepancy between the instructional methods being used in the schools and the instructional methods verified by research to be most effective. Despite the considerable amount of research indicating that cooperative learning has many advantages, current instruction in America is dominated by inappropriate interpersonal competition and individualistic learning. School is perceived to be basically competitive and current estimates indicate that only 7% to 20% of instructional time is spent in cooperative learning (D. Johnson & Johnson, 1976; R. Johnson, 1976; R. Johnson, Johnson, & Bryant, 1973). Despite the fact that most students prefer cooperative learning activities, teachers continue to emphasize learning alone, not looking at each other's papers, and striving to be the best student in the class. The paradoxes between societal needs and the research on instructional methods indicate that

cooperative, competitive, and individualistic learning situations need to be used more appropriately.

The purposes of this chapter are to

(1) orient readers to the basic concepts and theory that have guided the study of cooperative, competitive, and individualistic learning situations and define each type of social interdependence;
(2) share our concern and document briefly that we are in fact in a socialization and an achievement crisis;
(3) summarize the results of our theorizing and research efforts relevant to alleviating these crises;
(4) describe our applications of the validated theory to instruction in preschool, elementary, secondary, and postsecondary educational organizations.

DEFINITIONS

To a large extent social science is a cumulative process; researchers do not start from scratch and reinvent the wheel, but build on the work of their predecessors and contemporaries. One of the first steps in investigating the relative effects of cooperative, competitive, and individualistic learning situations, therefore, was to find the most relevant theoretical base from which to work. The study of cooperative, competitive, and individualistic situations has been blessed with a well-formulated theory with clearly conceptualized concepts developed by Morton Deutsch in the late 1940s. Deutsch's (1949) original theory has served as the major conceptual structure for this area of inquiry for the past 35 years. Deutsch was one of Kurt Lewin's graduate students and extended Lewin's theory of motivation to interpersonal situations. Lewin (1935) theorized that a state of tension within an individual motivates movement toward the accomplishment of desired goals. From Lewin's field theory, it may be concluded that it is the drive for goal accomplishment that motivates cooperative, competitive, and individualistic behavior.

Deutsch (1949, 1962), in his theory of how the tension systems of different people may be interrelated, conceptualized three types of goal structures: cooperative, competitive, and individualistic. Deutsch defined a *cooperative* social situation as one in which the goals of the separate individuals are so linked together that there is a positive correlation among their goal attainments. An individual can obtain his or her goal only if the other participants can obtain their goals. Thus a

person seeks an outcome that is beneficial to all those with whom he or she is cooperatively linked. In a *competitive* situation the goals of the separate individuals are so linked that there is a negative correlation among their goal attainments. An individual can attain his or her goal if and only if the other participants cannot obtain their goals. Thus a person seeks an outcome that is personally beneficial but is detrimental to the others with whom he or she is competitively linked. Finally, in an *individualistic* social situation there is no correlation among the goal attainments of the participants. Whether an individual accomplishes his or her goal has no influence on whether other individuals achieve their goals. Thus a person seeks an outcome that is personally beneficial, ignoring as irrelevant the goal achievement efforts of other participants in the situation.

In a *cooperatively* structured math class, heterogeneous small groups made up of one high, two medium, and one low math-ability students would be formed. The students would be given three tasks: to learn how to solve each assigned math problem, to make sure that the other members of their group know how to solve each problem, and to make sure that everyone in the class knows how to solve each problem. While the students work on the math problems, they discuss the solution of each with the other members of their group, explaining how to solve each problem, listening to each other's explanations, encouraging each other to try to understand the solutions, and providing academic help and assistance. When everyone in their group has mastered the solutions, they go look for another group to help until everyone in the class understands how to work the problems.

In a *competitively* structured math class, students would be given the task of solving the assigned math problems faster and more accurately than the other students in the class. They would be warned to work by themselves, without discussing the problems with other students, and to seek help from the teacher if they needed it. In a math class structured *individualistically*, students would be given the task of solving enough of the math problems correctly to reach a preset criterion of excellence. Students would be told to work by themselves, without disturbing their neighbors, and to seek help and assistance from the teacher. In each type of learning situation students have somewhat different interaction patterns. The cooperative interaction pattern is called *promotive* because students promote each other's learning. The competitive interaction pattern is called *oppositional* because students have a stake in ensuring that their classmates do *not* learn more than they do. The individualistic interaction pattern does not exist; students

have no reason to interact with each other at all in an individualistic learning situation.

A final point about theorizing in social psychology is that most social psychological theories are viewed as suffering from the General MacArthur shortcoming (old theories never die, they just slowly fade away). In other words, they are viewed as "soft" in the sense that they lack the cumulative character of scientific knowledge. Social psychological theories tend to be neither refuted nor corroborated, but fade away as psychologists lose interest. Deutsch's theory has been a marked exception to this trend. It has maintained prominence in social psychology, integrated most of the research findings, inspired new research, been confirmed, and modifications have been proposed to integrate new research findings.

CRISIS IN SOCIALIZATION

Many children, adolescents, and young adults feel isolated, disconnected from their parents and peers, unattached to school and career, without purpose and direction, and lacking any distinct impression of who and what kind of person they are (D. Johnson, 1979, 1980b). They feel as if they are aliens in their own native land, estranged from themselves, their parents and peers, their community and society, and the activities (such as education and career) that others of their own age are involved in. They are isolated by their own feelings of alienation and by the stress and lack of support and caring in their family, educational, and community experiences.

Healthy socialization and cognitive and social development depend primarily on the quality of the relationships children and adolescents experience in their families, schools, and communities. Socialization and development take place within relationships, and the nature of a person's relationships largely determines how well one is socialized. Our society is in the midst of an alienation crisis caused by the failure of healthy socialization processes to occur in the lives of many of our children and adolescents (Bronfrenbrenner, 1976; Johnson, 1979). This crisis is reflected in the amount of violence and crime in our schools and society, suicide rates, the presence of a criminal underclass made up largely of teenagers and young adults, and the general social malaise in our society. The roots of the alienation crisis may be in the changes in the structure of the family that have been occurring over the past 20 years, the isolation of students within schools and classrooms, and the

underutilization of peers as socializing influences. Each of these factors is briefly discussed below.

(1) The dramatic increase through the 1960s and 1970s of the frequency with which juveniles are involved in serious crimes against property (such as burglary, auto theft, larceny, arson, and vandalism) and people (such as homocide, rape, robbery, and aggravated assault). Much of this criminal activity takes place within schools. The annual cost of repairing the damage done to school property, for example, is more than $200 million; 2.4 million students and 128,000 teachers report having something stolen in a typical month, and 282,000 students and 5,200 teachers report being physically assaulted in a typical month (Bybee & Gee, 1982).

(2) The 250% increase in the suicide rate among teenagers and the 150% increase among children 5 to 14 years of age over the past 20 years (Bronfrenbrenner, 1976). Out of every 640 high school students, one will commit suicide this year, ten will make a serious attempt to kill themselves, and one hundred will contemplate doing so.

(3) The presence of a permanent criminal underclass that is completely out of touch with the rest of society. Auletta, in his book *The Underclass*, states, "I have met 15-year-olds who will kill absolutely without remorse. They are especially antagonized by any of the usual symbols of authority, property, office, and so on." What is new today, writes Silberman in *Criminal Violence, Criminal Justice*, is that people will "kill, maim, and injure without reason or remorse." Random and senseless murders committed by people who do not know their victims have been increasing twice as fast as other murders since the 1950s. The presence of a permanent criminal underclass presents a severe drain on our society.

(4) A general social malaise characterized by a loss of confidence in our future and in our ability to solve our societal problems. Twelve Americanists (all dons at Oxford University, England) recently completed a study of the United States entitled *American in Perspective: Major Trends in the United States Through the 1980's*. One of the major themes the British dons identified running through our cultural, economic, and political life is a general social malaise resulting in large numbers of people who are demoralized and view attempts to solve our national and world problems as hopeless and beyond our capabilities.

The roots of our socialization crisis include dramatic changes in the structure of society, the nature of schooling, and the underutilization of constructive peer influences. The relationships in many families are such that they do not contribute to constructive socialization. Family disorganization has been identified as an antecedent to behavior dis-

orders, lack of school achievement, and social pathology in children and adolescents (Bronfrenbrenner, 1975). Child abuse and the deliberate killing of children by parents has been steadily increasing over the past 20 years. There are fewer adults in the home, an increasing number of single-parent families, an increasing number of two breadwinners in intact families, and an increasing number of young teenage unmarried mothers. The watching of television has become a dominant activity of many children and adolescents. Children and adolescents are separated from the career activities of their parents more so now than in the past. The mobility of families reduces the impact of relationships in neighborhoods on socialization. The American Humane Association has stated that families have become highly individualistic and as a result children do not receive enough adult interaction, and the face-to-face discussion of feelings, values, and philosophy of life between parents and children is missed completely.

There is a similar reduction of the closeness of relationships in schools. In the past 20 years schools have become much larger, with corresponding increases in bureaucratization, resulting in impersonal formality. Individual accountability on a personal level has been decreasing within schools. Current estimates are that over 85% of instruction within schools involves lectures, individualized seatwork, or competition where students are isolated from one another, forbidden to interact, and pitted against each other.

Finally, the importance of relationships with other children and adolescents for constructive socialization and development (both cognitive and social) has, in general, been largely ignored in our society. Since this is a key aspect of the solution to the crisis in socialization, it is discussed in some depth in the next section.

IMPORTANCE OF PEER RELATIONSHIPS

Children and adolescents live in an expanding social world. From relating primarily to adult caretakers, young children begin interacting with other adults and with other children. As children become older, they have more interaction with other children and less interaction with adults. Yet, traditionally, adults in the United States have viewed the interaction between adults and children as the most important vehicle for ensuring the effective socialization and development of children and adolescents. Child-child relationships have been assumed to be, at best, relatively unimportant and, at worst, unhealthy influences.

This adult-centric view is reflected in the policies of our schools. In schools most legitimate peer interaction among students has been limited to extracurricular activities. These activities rarely deal directly with the basic issues of classroom life. The system of instruction emphasizes teacher lectures and seatwork done by students individually. Student attempts to interact with each other are seen as disruptive of this system. Furthermore, the rigid age segregation usually applied in school classrooms (and also fostered by the subdividing of school programs for administrative purposes into elementary, junior, and senior high schools) often limits peer interaction within a narrowly confined age span. Finally, educators systematically fail to train students in the basic social skills necessary for interacting effectively with peers (in this chapter the word "peer" means a wide age range of other children or adolescents). These skills are not considered pedagogically useful. Essentially, the typical adult-child dyadic view of teaching and learning has deemphasized student-student relationships in the classroom.

Despite these patterns of deemphasis, the fact is that peer relationships are a critical element in the development and socialization of children and adolescents (Hartup, 1976; D. Johnson, 1980a). In fact, the primary relationships in which development and socialization may take place may be with peers. Compared with interactions with adults, interactions with peers tend to be more frequent, intense, and varied throughout childhood and adolescence. Experiences with peers are not superficial luxuries to be enjoyed during lunch or on a Saturday afternoon. Constructive relationships with peers are a necessity.

There are numerous ways in which peer relationships contribute to (1) social and cognitive development and (2) socialization. Some of the more important consequences and correlates of peer relationships are (the specific supporting evidence may be found in D. Johnson, 1980a; and D. Johnson & Johnson, 1982c):

(1) In their interactions with peers, children and adolescents directly learn attitudes, values, skills, and information unobtainable from adults. In their interactions with each other, children and adolescents imitate each other's behavior and identify with friends possessing admired competencies. Through providing models, reinforcement, and direct learning, peers shape a wide variety of social behaviors, attitudes, and perspectives.

(2) Interaction with peers provides support, opportunities, and models for prosocial behavior. It is within interactions with other children and adolescents that one helps, comforts, shares with, takes care

of, assists, and gives to others. Without peers with whom to engage in such behaviors, many forms of prosocial values and commitments could not be developed. Conversely, whether adolescents engage in problem or transition behavior such as the use of illegal drugs and delinquency is related to the perceptions of their friends' attitudes toward such behaviors. Being rejected by one's peers tends to promote antisocial behavioral patterns characterized by aggressiveness, disruptiveness, and other negatively perceived behavior.

(3) Children and adolescents frequently lack the time perspective needed to tolerate delays in gratification. As they develop and are socialized, the focus on their own immediate impulses and needs is replaced with the ability to take longer perspectives. Peers provide models of, expectations of, directions for, and reinforcements of learning to control impulses. Aggressive impulses provide an example. Peer interaction involving such activities as rough-and-tumble play promotes the acquisition of a repertoire of effective aggressive behaviors and helps establish the necessary regulatory mechanisms for modulating aggressive effect.

(4) Children and adolescents learn to view situations and problems from perspectives other than their own through their interaction with peers. Such perspective taking is one of the most critical competencies for cognitive and social development. All psychological development may be described as a progressive loss of egocentrism and an increase in ability to take wider and more complex perspectives. It is primarily in interaction with peers that egocentrism is lost and increased perspective taking is gained.

(5) Autonomy is the ability to understand what others expect in any given situation and to be free to choose whether to meet their expectations. Autonomous people are independent of both extreme inner or out directedness. When making decisions concerning appropriate social behavior, autonomous people tend to consider both their internal values and the situational requirements and then respond in flexible and appropriate ways. Autonomy is the result of (1) the internalization of values (including appropriate self-approval) derived from caring and supportive relationships, and (2) the acquisition of social skills and sensitivity. Relationships with other children and adolescents are powerful influences on the development of the values and social sensitivity required for autonomy. Children with a history of isolation from or rejection by peers, furthermore, often are inappropriately other directed. They conform to group pressures even when they believe the recommended actions are wrong or inappropriate.

(6) While adults can provide certain forms of companionship, children need close and intimate relationships with peers with whom they can share their thoughts and feelings, aspirations and hopes, dreams and fantasies, and joys and pains. Children need constructive peer relationships to avoid the pain of loneliness.

(7) Throughout infancy, childhood, adolescence, and early adulthood, a person moves through several successive and overlapping identities. The physical changes involved in growth, the increasing number of experiences with other people, increasing responsibilities, and general cognitive and social development all cause changes in self-definition. The final result should be a coherent and integrated identity. In peer relationships children and adolescents become aware of the similarities and differences between themselves and others. They experiment with a variety of social roles that help them integrate their own sense of self. In peer relationships values and attitudes are clarified and integrated into an individual's self-definition. It is through peer relationships that a frame of reference for perceiving oneself is developed. Gender typing and its impact on one's identity is an example.

(8) Coalitions formed during childhood and adolescence provide help and assistance throughout adulthood.

(9) The ability to maintain interdependent, cooperative relationships is a prime manifestation of psychological health. Poor peer relationships in elementary school predict psychological disturbance and delinquency in high school, and poor peer relationships in high school predict adult pathology. The absence of any friendships during childhood and adolescence seem to increase the risk of mental disorder.

(10) In both educational and work settings, peers have a strong influence on productivity. Greater achievement is typically found in collaborative situations where peers work together than in situations where individuals work alone. Especially when a child or adolescent has poor study skills or is unmotivated, cooperative interaction with peers has powerful effects on productivity. Supportive relationships with peers are also related to using one's abilities in achievement situations.

(11) Student educational aspirations may be more influenced by peers than by any other school influences. Similarly, ambition in career settings is greatly influenced by peers.

Some of the steps to ensure that peer relationships occur and are a constructive influence on the socialization and development of children and adolescents are to (D. Johnson & Johnson, 1982c) (1) structure cooperative situations in which children and adolescents work with peers to achieve a common goal; (2) emphasize joint rather than individual products whenever possible; (3) teach directly the interper-

sonal skills needed to build and maintain collaborative relationships with peers; (4) give children and adolescents meaningful responsibility for the well-being and success of their peers; (5) encourage the feelings of support, acceptance, concern, and commitment that are part of collaborative situations; (6) hold children and adolescents accountable for fulfilling their obligations and responsibilities to their collaborators and give them mutual authority over each other; and (7) ensure that children experience success in a cooperative group setting.

Within instructional situations peer relationships can be structured to create meaningful interdependence through learning cooperatively with peers. Within cooperative learning situations students experience feelings of belonging, acceptance, support, and caring, and the social skills and social roles required for maintaining interdependent relationships can be taught and practiced. Through repeated cooperative experiences students can develop the social sensitivity of what behavior is expected from others and the actual skills to meet such expectations if they so desire. Through holding each other accountable for appropriate social behavior, students can greatly influence the values they internalize and the self-control they develop. It is through belonging to a series of interdependent relationships that values are learned and internalized and social sensitivity and autonomy are developed. It is through prolonged cooperative interaction with other people that healthy social development with the overall balance of trust rather than distrust of other people, the ability to view situations and problems from a variety of perspectives, a meaningful sense of direction and purpose in life, an awareness of mutual interdependence with others, and an integrated and coherent sense of personal identity, takes place (D. Johnson, 1979; D. Johnson & Matross, 1977).

THE INCREASING IMPORTANCE OF EDUCATION AS A SOCIALIZING AGENCY

The constructiveness of one's socialization and cognitive and social development depends on the quality (in terms of mutual support, caring, commitment, assistance, and identification) of relationships with admired and respected adults and other children and adolescents. Because of the changes in the family and in the patterns of family and neighborhood living, such relationships are not available to many children, adolescents, and young adults. As a result of this and other factors, our society is experiencing a socialization crisis reflected in such indexes as the involvement of juveniles in violent crimes against people

and property, the teenage and preteenage suicide rate, the growing presence of a criminal underclass, the frequency of pregnancies among young teenage females, decreasing achievement patterns, increasing frequency and severity of child abuse, increasing divorce rates, and a general social malaise spreading through our society. Major interventions in the socialization process are required, aimed at ensuring every child and adolescent in our society the constructive and caring relationships they need with individuals who genuinely wish to be productive societal members. The demise of many families and communities as socializing agents means that other organized activities in children's and adolescents' lives (such as education) assume increased importance. Schools have considerable influence as socializing agents, especially in the way in which learning experiences affect peer relationships. Schools may be the only viable setting in which to ensure that every child and adolescent is involved in high quality peer and adult-child relationships. The key to promoting or obstructing the development of such relationships is the way in which learning situations are structured. Learning situations may be structured competitively, individualistically, or cooperatively.

PROMOTING CONSTRUCTIVE SOCIALIZATION AND DEVELOPMENT

> Let us put our minds together . . . and see what life we can make for our children.
>
> —Sitting Bull

How can schools build high quality and committed relationships among peers? This is a question that has guided much of our research at the University of Minnesota. For the past several years we have been conducting a program of research aimed at studying the relative impact of cooperative, competitive, and individualistic learning experiences on interpersonal attachment. Our activities have included developing a theory concerning the conditions under which physical proximity and interpersonal interaction lead to positive or negative relationships among students, conducting a series of studies to validate the theory, and doing a meta-analysis on all the existing studies relating the three types of social interdependence to interpersonal attraction.

Basically we chose to conduct highly controlled field-experimental studies in actual classrooms and schools. Our typical study lasted three

weeks, compared cooperative learning situations with individualistic and/or competitive learning situations, and involved students from different ethnic groups and ability levels. We typically obtained the help of three classroom teachers who agreed to assist us in conducting the study. In order to ensure that there were no differences among students in each condition, we randomly assigned students, making sure that an equal number of males and females, majority and minority, and high, medium, and low ability students were in each condition. To make sure that the high quality teaching occurred in each condition, the teachers received a minimum of 90 hours of training on how to implement cooperative, competitive, and individualistic learning situations and were given a daily script to follow. In order to make sure that any differences among conditions we found were not due to differences in teaching ability, the teachers were rotated across conditions, so that each teacher taught each condition for one week. To make sure that the study did in fact test our theory, the ways we implemented cooperative, competitive, and individualistic learning were carefully structured to be unambiguous. To make sure that any differences among conditions we found were not due to differences in curriculum materials, the students studied the identical curriculum. To verify that the teachers were in fact teaching the conditions appropriately, we observed them daily. Finally, we collected observations of how students interacted with each other. We were determined to conduct our research in as highly controlled and careful a way as possible so we could be confident about the results. What follows is a summary of our theory and research and a brief description of the meta-analysis we conducted to help test the theory.

Conditions Leading to Positive or Negative Relationships

Building on the previous theorizing of Deutzch (1949, 1962), we posited that depending on whether interaction takes place within a context of positive, negative, or no goal interdependence, a process of acceptance or rejection takes place (D. Johnson, Johnson, & Maruyama, 1983). The process of acceptance (see Figure 5.1) results from interaction within a context of positive goal interdependence, which leads to

(1) promotive interaction;
(2) feelings of psychological acceptance;
(3) accurate perspective taking;

(4) differentiated (taking into account many different characteristics), dynamic (being modified from situation to situation), realistic views of collaborators and oneself;
(5) psychological success;
(6) basic self-acceptance and high self-esteem;
(7) positive cathexis toward collaborators, and
(8) expectations of rewarding future interactions with collaborators.

The process of rejection (see Figure 5.1) results from interaction within a context of negative or no goal interdependence. Negative goal interdependence promotes oppositional interaction and no goal interdependence results in no interaction with peers. Both lead to feelings of psychological rejection; inaccurate perspective taking; monolistic, static, and stereotyped views of classmates; psychological failure; contingent self-acceptance or basic self-rejection; negative or no cathexis toward classmates; and expectations of distastful and unpleasant interaction with classmates. With further interaction, the process of acceptance or rejection may be repeated.

Social Interdependence and Interpersonal Attraction

The basic proposition of the theoretical model is that the type of goal interdependence used to structure classroom learning determines whether interpersonal attraction or rejection results among students. The validity of this proposition must first be examined before the proposed mediating variables are reviewed. Our research has focused on and examined the relative impact of the three types of social interdependence on relationships (1) among homogeneous samples, (2) between ethnic minority and majority students, and (3) between handicapped and nonhandicapped students.

Our colleagues and ourselves have conducted a number of studies that indicate that cooperative learning experiences, compared with competitive and individualistic ones, promote more interpersonal attraction among students (Garibaldi, 1979; D. Johnson & Johnson, 1972; Tjosvold & Johnson, 1978; Tjosvold, Johnson & Johnson, 1982). In addition, we have conducted a number of large-scale surveys that indicate that cooperativeness is positively related to liking for other students while competitiveness and positive attitudes toward individualistic learning situations are not (Gunderson & Johnson, 1980; D. Johnson & Ahlgren, 1976; D. Johnson, Johnson, & Anderson, 1978). We also found evidence that cooperative learning experiences, compared with individualistic ones, promote more positive attitudes toward

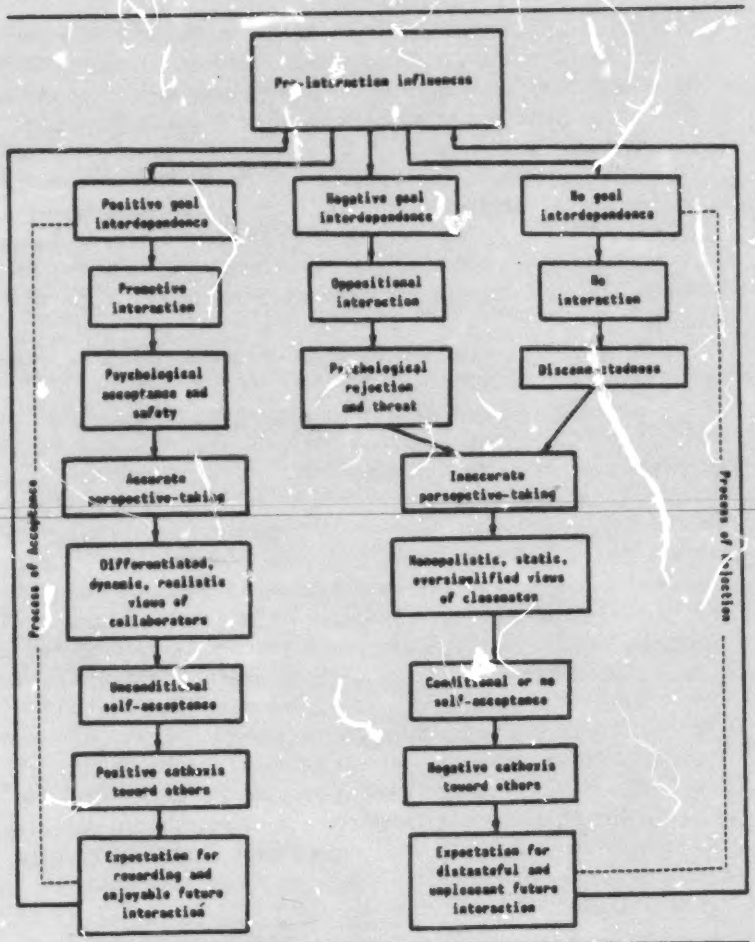

Figure 5.1 Social Judgment Crisis

heterogeneous peers (D. Johnson & Johnson, 1983; D. Johnson, Johnson, & Scott, 1978).

Our next series of studies found that cooperative learning experiences, compared with competitive or individualistic ones, promoted greater interpersonal attraction between ethnic minority and majority students (Cooper, Johnson, Johnson, & Wilderson, 1990; D. Johnson & Johnson, 1981a, 1982a; D. Johnson, Johnson, Tiffany, & Zaidman,

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1983; S. Johnson & Johnson, 1972). Finally, we have conducted a series of studies demonstrating that cooperative learning experiences promote greater interpersonal attraction among handicapped and nonhandicapped students than do competitive or individualistic learning experiences (Armstrong, Johnson, & Balow, 1981; Cooper et al., 1980; D. Johnson & Johnson, 1981b, 1982a, 1982b, 1983; R. Johnson & Johnson, 1981, 1982a, 1983; R. Johnson, Johnson, DeWeerdt, Lyons, & Zaidman, 1983; R. Johnson, Rynders, Johnson, Schmidt, & Haider, 1979; Martino & Johnson, 1979; Nevin, Johnson, & Johnson, 1982; Rynders, Johnson, Johnson, & Schmidt, 1980; Smith, Johnson, & Johnson, 1982).

While the above studies represent considerable validation of the basic proposition of our theoretical model, there remained the need to verify that other researchers were finding similar results. Research reviews commonly examine only subsets of the existing studies, allowing different reviewers to come up with contradictory conclusions. The use of the summary-impression method of reviewing literature has been severely criticized recently. We recently completed, therefore, a meta-analysis (see Rosenthal, in this volume) of all existing research on the relative impact of cooperative, cooperative with intergroup competition, interpersonal competitive, and individualistic learning experiences on interpersonal attraction among homogeneous and heterogeneous samples of students (D. Johnson, Johnson, & Maruyama, 1983). We reviewed 98 studies conducted between 1944 and 1982 that yielded 251 findings. Three types of meta-analysis procedures were used: voting method, effect-size method, and z-score method. The results of all three analyses provide strong validation for the proposition that cooperative learning experiences, compared with competitive or individualistic ones, promote greater interpersonal attraction among homogeneous students, students from different ethnic groups, and handicapped and nonhandicapped students.

Processes of Acceptance and Rejection

Our theoretical model posits that there are a number of variables that partially explain the relationship between cooperative, competitive, and individualistic learning experiences and interpersonal attraction. The work of a number of social scientists indicates the following:

(1) The more promotive (as opposed to oppositional or no) interaction among students, and the more students facilitate (as opposed to frus-

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frate or ignore) each other's goal achievement the greater resulting interpersonal attraction.

(2) The greater one's conviction that others are encouraging, supporting, and accepting one's efforts to achieve, the greater the interpersonal attraction.

(3) The more accurate one's perspective taking, the greater one's empathy with, understanding of, and altruism for others, which results in greater interpersonal attraction.

(4) The more realistic, dynamic, and differentiated (as opposed to monopolistic, static, and stereotyped) one's perceptions of others, the more one likes and identifies with them.

(5) The higher one's self-esteem, the less one's prejudices against and the higher one's acceptance of and liking for others.

(6) The greater one's academic and psychological success, the more one likes those who have contributed to and facilitated that success.

(7) The more one expects future interactions to be positive and productive, the more one likes others.

Thus, it may be assumed that the more cooperative experiences tend to promote the occurrence of these variables, the greater the resulting interpersonal attraction among students.

Promotive Versus Oppositional or No Interaction

One reason why cooperative experiences may promote more interpersonal attraction among students than do competitive or individualistic experiences is that within cooperative situations participants benefit from facilitating each other's efforts to achieve, while in competitive situations participants benefit from obstructing each other's efforts to achieve, and in individualistic situations the success or failure of others is irrelevant. There is more frequent cross-ethnic and cross-handicap helping and tutoring in cooperative than in competitive or individualistic learning situations (Armstrong, Johnson, & Balow, 1981; Cooper et al., 1980; D. Johnson, & Johnson, 1981a, 1981b, 1982a, 1982b, 1983, in press-a; D. Johnson, Johnson, Tiffany, & Zaidman, 1983). There is also more facilitative and encouraging interaction among students in cooperative than in competitive or individualistic learning situations (D. Johnson & Johnson, 1981a, 1981b, 1982a, 1982b, 1983, in press-a; D. Johnson, Johnson, Roy, & Zaidman, 1983; D. Johnson, Johnson, Tiffany, & Zaidman, 1983; R. Johnson & Johnson, 1981, 1982a, 1983; R. Johnson, Rynders, et al., 1979; Martino & Johnson, 1979; Nevin, Johnson, & Johnson, 1982; Rynders et al., 1980). There is evidence, furthermore, that individuals like those who facilitate their goal accom-

plishment and dislike those who obstruct their goal accomplishment (D. Johnson & Johnson, 1972; S. Johnson & Johnson, 1972). Expectations that another person will facilitate one's goal accomplishment (D. Johnson & Johnson, 1972) and perceptions that another person is exerting effort to facilitate one's goal accomplishment (Tjosvold, Johnson, & Johnson, 1981) are enough to induce liking.

Perceived Peer Support and Acceptance

> Two are better than one, because they have a good reward for their toil. For if they fall, one will lift up his fellow; but woe to him who is alone when he falls and has not another to lift him up. Again, if two lie together, they are warm; but how can one be warm alone? And though a man might prevail against one who is alone, two will withstand him. A threefold cord is not quickly broken.
>
> —Ecclesiastes 4:9-13

Cooperative learning experiences, compared with competitive and individualistic ones, have been found to result in stronger beliefs that one is personally liked, supported, and accepted by other students, that other students care about how much one learns, and that other students want to help one learn (Cooper et al., 1980; Gunderson & Johnson, 1980; D. Johnson & Johnson, 1981a, 1981b, 1982b, 1983, in press-a, in press-b; D. Johnson, Johnson, Johnson, & Anderson, 1978; D. Johnson, Johnson, Roy, & Zaidman, 1983; D. Johnson, Johnson, Tiffany, & Zaidman, 1983; D. Johnson, Skon, & Johnson, 1980; R. Johnson, Bjorkland, & Krotee, 1983; R. Johnson, Johnson, DeWeerdt et al., 1983; Skon, Johnson, & Johnson, 1981; Smith, Johnson, & Johnson, 1981; Tjosvold, Marino, & Johnson, 1977). Attitudes toward cooperation, furthermore, are significantly related to believing that one is liked by other students and to wanting to listen to, help and do schoolwork with other students (D. Johnson & Ahlgren, 1976; D. Johnson, Johnson, & Anderson, 1978).

Accuracy of Perspective Taking

Social perspective taking is the ability to understand how a situation appears to another person and how that person is reacting cognitively and emotionally to the situation. The opposite of perspective taking is egocentrism, the embeddedness in one's own viewpoint to the extent that one is unaware of other points of view and of the limitations of one's

perspective. A number of studies have found that cooperativeness is positively related to the ability to take the emotional perspective of others (D. Johnson, 1975a, 1975b). Cooperative learning experiences have been found to promote greater cognitive and affective perspective taking than do competitive or individualistic learning experiences (D. Johnson & Johnson, 1982b, in press-a; D. Johnson, Johnson, Johnson, & Anderson, 1976; R. Johnson & Johnson, 1981; Lowry & Johnson, 1981; Smith et al., 1981; Tjosvold & Johnson, 1978; Tjosvold et al., 1982).

Differentiation of View of Others

Stereotypes usually focus on only a few characteristics of a person and remain unchanged from situation to situation. Armstrong, Johnson, and Balow (1981) found a more differentiated view of handicapped peers resulting from a cooperative, compared with an individualistic learning experience. Ames (1981) found that within a cooperative situation participants seemed to have a differentiated view of collaborators and tended to minimize perceived differences in ability and view all collaborators as being equally worthwhile, regardless of their performance level or ability. Students in the competitive situation tended to focus primarily on differences in ability in their evaluations of each other (a monopolistic, static, and stereotyped view), and they tended to perceive the nonwinners as being less deserving of reward. D. Johnson, Johnson, and Scott (1978) found that when given a choice of future collaborators, low achievers were picked by classmates just as frequently as high achievers, indicating that cooperative experiences promoted a differentiated view of classmates.

Self-Esteem

Cooperative learning experiences, compared with competitive and individualistic ones, tend to promote higher levels of self-esteem and healthier processes for deriving conclusions about one's self-worth (Gunderson & Johnson, 1980; D. Johnson & Ahlgren, 1976; D. Johnson & Johnson, 1983; D. Johnson, Johnson, & Anderson, 1978; D. Johnson, Johnson, & Scott, 1978; D. Johnson, Johnson, Tiffany, & Zaichkan, 1983; D. Johnson & Norem-Hebeisen, 1977; R. Johnson & Johnson, 1981; R. Johnson, Johnson, DeWeerdt et al., 1983; R. Johnson, Bjorkland, & Krotee, 1983; R. Johnson, Johnson, & Rynders, 1981; Nevin et al., 1982; Norem-Hebeisen & Johnson, 1981; Smith, Johnson, & Johnson, 1982). Norem-Hebeisen and Johnson (1981)

found that cooperativeness tended to be related to basic self-acceptance and positive self-evaluation compared to peers, competitiveness tended to be related to conditional self-acceptance, and positive attitudes toward individualistic situations tended to be related to basic self-rejection.

Academic Success

Cooperative learning experiences tend to promote higher achievement than do competitive or individualistic ones (D. Johnson, Maruyama, Johnson, Nelson, & Skon, 1981). Such success has been found to be related to interpersonal attraction among collaborators (D. Johnson, Johnson, & Maruyama, 1983). This evidence is reviewed in more detail later in this chapter.

Expectations Toward Future Interaction

The final aspect of the process of acceptance is that it promotes expectations toward rewarding and enjoyable future interaction among students. The final aspect of the process of rejection is that it promotes expectations toward negative, frustrating, and unpleasant future interaction among students. Both affect interpersonal attraction (D. Johnson & Johnson, 1972).

Generalization to Free-Time Situations

Even though students express liking for each other during instructional situations, there is a need to determine whether these relationships will generalize to postinstructional, free-choice situations in which students can interact with whomever they wish. A number of recent studies have demonstrated that when students were placed in postinstructional, free-choice situations there was more cross-ethnic interaction (D. Johnson & Johnson, 1981a, 1982; D. Johnson, Johnson, Tiffany, & Zaidman, 1983) and more cross-handicap interaction (D. Johnson & Johnson, 1981b, 1983, in press-a; R. Johnson & Johnson, 1981, 1982a, 1983; R. Johnson, Johnson, DeWeerdt et al., 1983; Martino & Johnson, 1979) when students had been in a cooperative rather than a competitive or individualistic learning situation. In other words, the relationships formed within cooperative learning groups do generalize to postinstructional situations.

Relationships with Adults

Cooperative learning experiences not only affect relationships with other students, they also affect relationships with adults in the school. The more favorable students' attitudes toward cooperation, the more they believe that teachers, teachers' aides, counselors, and principals are important and positive; that teachers care about and want to increase students' learning; that teachers like and accept students as individuals; and that teachers and principals want to be friends with students (Gunderson & Johnson, 1980; D. Johnson & Ahlgren, 1976; D. Johnson, Johnson, & Anderson, 1978). These findings hold in elementary, junior high, and senior high schools in rural, suburban, and urban school districts. In suburban junior and senior high schools, student competitiveness becomes positively related to perceptions of being liked and supported personally and academically by teachers. Individualistic attitudes are consistently unrelated to attitudes toward school personnel. There are also several field experiments that demonstrate that students participating in cooperative learning experiences, compared with competitive and individualistic ones, like the teacher better and perceive the teacher as being more supportive and accepting academically and personally (D. Johnson & Johnson, in press-b; D. Johnson, Johnson, Johnson, & Anderson, 1976; D. Johnson, Johnson, & Scott, 1978; R. Johnson, Bjorkland, & Krotee, 1983; R. Johnson, Johnson, & Tauer, 1979; R. Johnson, Johnson, & Rynders, 1981; Tjosvold et al., 1977; Wheeler & Ryan, 1973).

Collaborative Competencies

> The fundamental facts that brought about cooperation, society, and civilization and transformed the animal man into a human being are the facts that work performed under the division of labor is more productive than isolated work and that man's reason is capable of recognizing the truth.
>
> —Ludwig von Mises (1949)

Schooling is future oriented in the sense that the instruction taking place is primarily aimed at preparing students for career and adult responsibilities. The assumption is made that students will be able to apply successfully what they learn in school to career, family, community, and society settings. It does no good to train an engineer or secre-

tary, for example, if the person cannot work effectively with other people and contribute what they know to joint efforts and maintain a job as an engineer or secretary after they have finished school. The industrial strategy of Japan is a good illustration of this principle. Japanese management has been quoted as stating that the superiority of the Japanese industrial system is not based on the fact that their workers are more intelligent than are the workers of other countries, but that their workers are better able to work in harmony and cooperation with each other. Obviously, the studies noted above in the section on promotive interaction indicate that students in cooperative learning situations learn more collaborative skills than do students learning competitively or individualistically. These skills, furthermore, have been demonstrated to transfer to new situations (R. Johnson & Johnson, 1982a).

Psychological Health

When students finish school it is important that they have the psychological stability to build and maintain career, family, and community relationships and perceive a basic and meaningful interdependence with other people. We have conducted two correlational studies directly relating cooperative, competitive, and individualistic attitudes with a wide variety of measures of psychological health, one focusing on high school seniors (D. Johnson & Norem-Hebeisen, 1977) and one focusing on imprisoned adolescents and adults (James & Johnson, 1983). We found cooperativeness to be positively related to numerous indexes of psychological health such as emotional maturity, well-adjusted social relations, strong personal identity, and basic trust in and optimism about other people; competitiveness to be positively related to a few indexes of psychological health; and individualistic attitudes to be related to numerous indexes of psychological pathology, emotional immaturity, social maladjustment, alienation, and self-rejection. While all of this evidence is correlational, it does provide some indication of the possible long-term impact of the three types of social interdependence and points toward individualistic efforts, where students are isolated and disconnected from one another, as being the instructional strategy most potentially damaging to psychological health.

ACHIEVEMENT PARADOX

The second educational paradox is that while our economic system is based on the quality of our work force, our schools are dominated by

relatively ineffective instructional procedures. Our society has moved into a crisis over the quality of our human capital that calls into question the ability of our educational system to provide our society with psychologically well-adjusted and competent individuals who are motivated and able to pursue careers in scientific and technological fields. As a result of this crisis our society is faced with large numbers of individuals who are technologically ignorant, unversed in even the simplest principles of chemistry, physics, and biology, and unable to manage the high degree of technology needed in a modern economy and society. There is a growing recognition, for example, that no country can build a high-quality economy with a low-quality work force, and that American productivity relies more on people than on machines. The achievement crisis in our schools is reflected in discussions of the decline in scores on the Scholastic Aptitude Test (SAT), investing in people, the quality of science education, and the creation of an educational underclass.

SAT Scores

Although more students are staying in school longer and going on to college, all signs indicate that they are more poorly equipped in basic skills than their predecessors. The average scores on the College Entrance Examination Board's Scholastic Aptitude Test, for example, have declined steadily during the past twenty years. The number of high achievers on the SAT (those scoring over 600) has been dropping, and the scores of top students (valedictorians and salutatorians) show a similar decline. There is a decline in the percentage of new technological breakthroughs taking place within the United States relative to the other industrial countries, especially Japan and West Germany.

Quality of Work Force

The quality of the work force is the acquired abilities of the population: their education, experience, skills, health, creativity, motivation, and entrepreneurism (Becker, 1975). Traditionally in the United States half of our growth in productivity comes from increases in individuals' skills and knowledge. A number of economists are stating that if America does not invest more in the quality of its work force America will inevitably decline (Becker, 1975; Schultz, 1981). They state that we have to invest in people or we will get precious little out of our machines. The investment in population quality and in knowledge in large part determines the future prospects of humans and of society. The growth of American productivity depends on investment in education and activities that lead to entrepreneurial ability. Science education is espe-

cially important, as increasing scientific, technological, and other aspects of literacy have been far more important to the industrialization of the West than have been generally acknowledged (Schultz, 1981).

Science Education

There is evidence that science is not well liked by teachers or students in the United States (R. Johnson & Johnson, 1982b; Walberg, 1982). Students in kindergarten through sixth grade in 1976 were found to be spending only 20 minutes a day on science lessons. In 1976 9-year-olds, 13-year-olds, and 17-year-olds named science least often as their favorite subject in comparison with mathematics, language arts, social studies, and other subjects. Of U.S. high school students, 50% take no science courses after tenth grade. The percentage of seniors intending to major in all sciences and related subjects such as engineering in college declined from 39% in 1965 to 19% in 1975 and will decline to a projected 15% by 1985 if present trends continue (National Science Foundation, 1980).

For the past 15 years or so the science and math achievement of our students has been falling relative to the other industrialized countries in the world. In 1970 and 1971 an international study indicated that U.S. 18-year-olds ranked ninth of fourteen industrialized countries in science achievement. Japan did far better than any other country. Wirszup (1981) stated that in the Soviet Union 5 million secondary school students complete a one-year course in calculus while only 500,000 U.S. students take calculus in high school or college. All youth, the Soviets claim, are required to complete four years of physics, four of chemistry, and up to four years of biology by the end of secondary school (which nearly all students complete). The purpose of this curriculum is to build up the scientific and technical base of the economy and to supply technologically oriented people to the military.

Educational Underclass

There is an old joke that says, "If you think education is expensive, try ignorance!" This statement may be no longer funny as functional illiteracy seems to be increasing among both those who drop out of school and those who finish. In 1975 about 20% of all American 17-year-olds were functionally illiterate; they failed to respond correctly to simple written questions about everyday life in our modern society (Lerner, 1981). As citizens they may be unable to participate fully either in civic and cultural affairs or in production and consumption involving

the largest sector of the economy. In 1981 in New York City one out of every two people who took the examination to see whether they were fit to be telephone operators flunked. The House Wednesday Group, a caucus of moderate Republicans, stated that a then unreleased Army training study in 1977-1978 found that 17% of the tank commanders in Europe and 21% of those in the United States did not know where to aim when employing battlefield gunnery techniques. Similarly, the survey uncovered men in charge of firing surface-to-air missiles who could not differentiate between the silhouettes of Soviet and American planes.

EDUCATIONAL RESPONSE

> What children can do together today, they can do alone tomorrow.
> —Vygotsky (1978)

In order to provide our society with a high quality work force (and thereby a secure future) there are a number of outcomes that must be maximized by our educational system, including,

(1) high achievement reflected in the mastery of the facts, information, and theories taught in school;
(2) the development of critical thinking competencies and the use of higher level reasoning strategies;
(3) the positive attitudes toward subject areas such as math and science required to generate continuing motivation to study, take advanced training in, learn more about, and enter careers related to science and math;
(4) the ability to utilize one's knowledge and resources in collaborative activities with other people in career, family, community, and societal settings; and
(5) the psychological health and well-being required to participate effectively in our society.

Whether learning situations are structured competitively, individualistically, or cooperatively has some impact on these variables. The solution to our society's achievement crisis may be facilitated through the appropriate use of the three goal structures in instructional situations.

Achievement

In *Look Homeward Angel* Thomas Wolfe records how in grammar school Eugene learned to write from a "comrade," learning from a peer

what "all instruction failed" to teach him. In our studies we have found considerable evidence that cooperative learning experiences promote higher achievement than do competitive and individualistic learning experiences (Armstrong et al., 1981; Garibaldi, 1979; Humphreys, Johnson, & Johnson, 1982; D. Johnson & Johnson, 1982b, in press-a; D. Johnson, Johnson, Johnson, & Anderson, 1976; D. Johnson, Johnson, & Scott, 1978; D. Johnson, Johnson, & Skon, 1979; D. Johnson, Skon, & Johnson, 1980; D. Johnson, Johnson, Roy, & Zaidman, 1983; D. Johnson & Johnson, 1980; D. Johnson, Johnson, Tiffany, & Zaidman, 1983; R. Johnson, Bjorkland, & Krotee, 1983; R. Johnson & Johnson, 1979; R. Johnson, Johnson, DeWeerdt et al., 1983; R. Johnson, Johnson, & Tauer, 1979; Lowry & Johnson, 1981; Martino & Johnson, 1979; Skon et al., 1981; and Smith et al., 1981, 1982).

Since the 1920s there has been a great deal of research on the relative effects of cooperative, competitive, and individualistic efforts on achievement and productivity. Our work is only a small part of this research effort. Despite the large number of studies conducted, however, social scientists have disagreed as to the conclusions that may be drawn from the literature. The traditional practice seemed to be to select a subset of studies that supported one's biases, declare that they are the only studies that are relevant to the question, place them in a review, and give summary impressions of their findings. Michaels (1978), for example, selected ten studies to include in a review and concluded that competition promoted higher achievement than did cooperation. Slavin (1977) selected 27 studies to include in a review and concluded that cooperation promoted higher achievement than competition only if intergroup competition was included. These reviews are a classic example of the shortcomings of the summary-impression method of reviewing research literature.

In order to resolve the controversies resulting from the various reviews on social interdependence and achievement, we conducted a meta-analysis of all the studies that had been conducted in the area (D. Johnson, Maruyama et al., 1981). We reviewed 122 studies conducted between 1924 and 1981 that yielded 286 findings. Three methods of meta-analysis were used: voting method, effect-size method, and z-score method. The results indicate that cooperative learning experiences tend to promote higher achievement than do competitive and individualistic learning experiences. The average person working within a cooperative situation achieves at about the eightieth percentile of the students working within a competitive or individualistic situation. These results hold for all age levels, for all subject areas, and for tasks involving

concept attainment, verbal problem solving, categorizing, spatial problem solving, retention and memory, motor performance, and guessing-judging-predicting. For rote-decoding and correcting tasks, cooperation seems to be equally effective as competitive and individualistic learning procedures.

INTERNAL DYNAMICS OF COOPERATIVE LEARNING GROUPS

Despite the large number of studies comparing the relative impact of cooperative, competitive, and individualistic learning situations on achievement, the processes that mediate or moderate the relationship between cooperation and productivity has been relatively ignored. Over the past several years we have examined a number of potentially explanatory variables to illuminate the achievement related internal dynamics of cooperative learning groups. The potentially mediating or moderating variables we have studied are

(1) the type of learning task assigned;
(2) the quality of learning strategy used to complete learning tasks;
(3) the occurrence of controversy versus concurrence seeking when students disagree with each other while completing learning tasks;
(4) the time-on-task engaged in while completing the learning tasks;
(5) the cognitive processing engaged in while interacting about the learning tasks;
(6) the peer regulation and feedback engaged in while interacting about the learning tasks;
(7) the active involvement in learning occurring while completing the learning tasks;
(8) the ability levels of group members;
(9) group cohesion.

Type of Task

In our original review of the literature (D. Johnson & Johnson, 1974, 1975) the evidence indicated that for simple, mechanical, previously mastered tasks that require no help from other students, competition promoted greater quantity of output than did cooperative or individualistic efforts. Believing that the type of task being used might be an important explanatory variable, the authors and their students conducted a series of studies examining the relative effects of cooperative,

competitive, and individualistic goal structures on achievement on a variety of school related tasks (Garibaldi, 1979; D. Johnson, Johnson, & Skon, 1979; D. Johnson, Skon, & Johnson, 1980; R. Johnson & Johnson, 1979, Skon et al., 1981). The studies focused on white first- and fifth-grade students from both urban and suburban settings and black high school students from an urban setting. The results are surprisingly consistent. On mathematical and verbal drill-review tasks, spatial-reasoning and verbal problem-solving tasks, pictorial and verbal sequencing tasks, tasks involving the comparison of the attributes of shape, size, and pattern, and a knowledge-retention task, cooperation promoted higher achievement than did either competitive or individualistic efforts. On a specific knowledge-acquisition task both cooperation and competition promoted higher achievement than did individualistic efforts. These findings are all the more important as care was taken to optimize the constructiveness of the operationalizations of competitive and individualistic instruction.

Currently there is no type of task on which cooperative efforts are less effective than are competitive or individualistic efforts, and on most tasks (and especially the more important learning tasks such as concept attainment, verbal problem solving, categorization, spatial problem solving, retention and memory, motor, guessing-judging-predicting) cooperative efforts are more effective in promoting achievement. We therefore left this area of study and moved to an examination of the quality of the strategies being used in learning situations.

Quality of Learning Strategy

The next potential explanatory variable we studied was the quality of the reasoning strategy students used to complete their assignments. In a pair of studies (D. Johnson, Skon, & Johnson, 1980; Skon et al., 1981) done in collaboration with Linda Skon, we found that students in the cooperative condition used strategies superior to those used by the students in the competitive and individualistic conditions. These strategies included using category search and retrieval strategies, intersectional classification strategies, formulating equations from story problems, and formulating strategies for avoiding repetitions and errors in a spatial reasoning task. From these findings we can conclude that the discussion process in cooperative groups promotes the discovery and development of higher quality cognitive strategies for learning than does the individual reasoning found in competitive and individualistic learning situations. In a later study (D. Johnson & Johnson, 1981a) we found that students working in a cooperative condition reported using higher thought processes than did students working individualistically.

Controversy Versus Concurrence Seeking

Involved participation in cooperative learning groups will inevitably produce conflicts among the ideas, opinions, conclusions, theories, and information of members. When such controversies arise, they may be dealt with constructively or destructively, depending on how they are structured by the teacher and the level of social skills of the students. We have conducted a series of studies (Lowry & Johnson, 1981; Smith et al., 1981) and reviewed the research literature (D. Johnson, 1980; D. Johnson & Johnson, 1979) on controversy. When managed constructively, controversy promotes epistemic curiosity or uncertainty about the correctness of one's views, an active search for more information, and consequently higher achievement and retention of the material being learned. Individuals working alone in competitive and individualistic situations do not have the opportunity for such a process and, therefore, their achievement suffers.

Time-on-Task

Another possible explanation for the superiority of cooperation in promoting higher achievement than do competitive or individualistic efforts is that students in cooperative learning groups spend more time-on-task than do students in competitive and individualistic learning situations. In a number of studies we observed the amount of on-task time in the three types of learning situations (Nevin et al., 1982; D. Johnson & Johnson, 1981a, 1982; D. Johnson, Johnson, Roy, & Zaidman, 1983; R. Johnson & Johnson, 1981, 1982). Our results indicate that in two of the studies more on-task behavior was found in the cooperative conditions, while in four of the studies no significant difference in on-task behavior was found. From these results it may be concluded that cooperative learning situations may promote more on-task behavior than the other two goal structures, but probably there is little difference in observed actual on-task behavior among the three goal structures.

Cognitive Processing

One of the most promising mediating variables identified in our meta-analysis (D. Johnson et al., 1981) as explaining part of the relationship between cooperation and achievement was that oral rehearsal of the information has been found to be necessary for the storage of information into memory, as promoting long-term retention of information, and as increasing achievement. Two of our students,

Virginia Lyons (1982) and Patricia Roy (1981) developed an observational instrument that measured the amount of lower-level (repetition of information), intermediate-level (stating of new information), and high-level (explanations, rationales, integration) rehearsal within learning situations. The results of our studies (D. Johnson & Johnson, 1983; D. Johnson, Johnson, Roy, & Zaidman, 1983; R. Johnson, Johnson, DeWeerdt et al., 1983) indicate that cooperative efforts contain more low-, intermediate-, and high-level oral rehearsal of information by low, medium, and high ability students than do individualistic efforts. The results also indicate that within the cooperative condition, intermediate-level oral rehearsal was related to achievement.

Peer Support, Regulation, and Feedback

A number of studies have found more peer regulation, feedback, support, and encouragement of task related efforts in cooperative than in individualistic learning situations (Johnson, 1980). Such peer interaction is often viewed as important for task engagement and for the motivation of less "mature" learners (who may need an external agent to provide more guidance and monitoring of their progress through the steps required to complete a task). For the past two years we have been working on an observational measure of peer academic support, encouragement, regulation, and feedback. We (D. Johnson & Johnson, in press-a; Johnson, Johnson, Roy, & Zaidman, 1983; Johnson, Johnson, Tiffany, & Zaidman, 1983) found more peer encouragement, feedback and regulation in the cooperative than in the individualistic condition. Within the cooperative condition, peer academic encouragement and regulation were significantly related to achievement.

Active Mutual Involvement in Learning

Cooperative learning situations promote a mutual active oral involvement in learning situations within which students work silently on their own. Within a cooperative learning situation, students are required to discuss the material being learned with one another (D. Johnson & Johnson, in press-a; D. Johnson, Johnson, Roy, & Zaidman, 1983; D. Johnson, Johnson, Tjosvold, & Zaidman, 1983); we directly observed the active oral involvement of students in completing assigned learning tasks. There is considerably more active oral involvement in cooperative than in individualistic learning situations. The active engagement of providing task-related information was found to be significantly correlated with achievement in the cooperative condition.

There is evidence that the more cooperative students' attitudes are, the more they express their ideas and feelings in large and small classes and the more they listen to the teacher, whereas competitive and individualistic attitudes are unrelated to indexes of active involvement in instructional activities (D. Johnson & Ahlgren, 1976; D. Johnson, Johnson, & Anderson, 1978). There is evidence that cooperative learning experiences, compared with competitive and individualistic ones, result in a greater desire to express one's ideas to the class (D. Johnson, Johnson, Johnson, & Anderson, 1976; Wheeler & Ryan, 1973). Cooperative learning experiences, compared with competitive and individualistic ones, promote greater willingness to present one's answers and thus create more positive feelings toward one's answers and the instructional experience (Garibali, 1978; Gunderson & Johnson, 1980).

Ability Levels of Group Members

Another potentially mediating variable within cooperative learning groups is the interaction among students from diverse ability levels. There may be an important advantage to having high, medium, and low ability students work together on completing assignments and learning material. A number of our studies have compared the achievement of high, medium, and low ability students involved in cooperative learning activities with the achievement of their counterparts working alone individualistically or competitively (Armstrong et al., 1981; D. Johnson, Johnson, Roy & Zaidman, 1983; Martino & Johnson, 1979; Nevin et al., 1982; Smith et al., 1981, 1982; Skon et al., 1981). There can be little doubt that the low and medium ability students especially benefit from working collaboratively with peers from the full range of ability differences. There is also evidence that high ability students are better off academically when they collaborate with medium and low ability peers than when they work alone; at the worst, it may be argued that high ability students are not hurt by interacting collaboratively with their medium and low ability classmates. One of the important interal dynamics of cooperative learning groups, therefore, may be the opportunity for students with different achievement histories interacting with one another to complete assigned learning tasks.

Group Cohesion

Within cooperative learning groups, members typically develop considerable liking for each other and attachment to being a member of the group (D. Johnson, Johnson, & Maruyama, 1982). These positive feelings toward the group and the other members may have a number

of important influences on motivation to achieve and actual achievement.

OTHER ACHIEVEMENT-RELATED OUTCOMES

In addition to performance in achievement-oriented situations, there are a number of other achievement-related outcomes that are important. These variables include

(1) the development of critical thinking competencies and the use of higher level reasoning strategies;
(2) the development of positive attitudes toward subject areas such as math and science required to generate continuing motivation to study, take advanced courses in, learn more about, and enter careers related to science and math;
(3) the ability to utilize one's knowledge and resources in collaborative activities with other people in career, family, community, and societal settings;
(4) the psychological health and well-being required to participate effectively in our society.

The first two outcomes are discussed below. The other outcomes have been discussed previously.

Critical Thinking

In many subject areas related to science and technology the teaching of facts and theories is considered to be secondary to the teaching of critical thinking and the use of higher level reasoning strategies. The aim of science education, for example, has been to develop individuals "who can sort sense from nonsense," or who have the critical thinking abilities of grasping information, examining it, evaluating it for soundness, and applying it appropriately. The superiority of cooperation over competitive and individualistic efforts in promoting achievement on problem-solving and reasoning tasks (D. Johnson, Maruyama et al., 1981) indicates that cooperation may promote more critical thinking. We have found in our own studies that students in cooperative learning situations use higher level reasoning strategies than do students in competitive and individualistic learning situations (D. Johnson & Johnson, 1981a; D. Johnson, Skon, & Johnson, 1980; Skon et al., 1981).

Attitudes Toward Subject Areas

To provide a high quality labor force for our society, graduates from our educational system must have a high degree of scientific and technological literacy and a high percentage of our top students must enter science-related careers. Yet there is considerable evidence that most students in the United States dislike science, fail to take advanced science courses in high school, and are not majoring in science and related careers in college (Walberg, 1982). There is a critical need, therefore, to develop instructional strategies that will promote more positive attitudes toward the subject area being studied and increase students' continuing motivation to study, take further courses in, enter careers, and learn more about that subject area. Our colleagues and ourselves have conducted a series of studies that indicate that cooperative learning experiences, compared with competitive and individualistic ones, promote more positive attitudes toward the subject area and the instruction experience (Garibaldi, 1979; Gunderson & Johnson, 1980; D. Johnson, Johnson, & Skon, 1979; R. Johnson & Johnson, 1979; Lowry & Johnson, 1981; Smith et al., 1981; Wheeler & Ryan, 1973). There is also evidence that cooperative learning experiences promote more continuing motivation to learn than do individualistic learning experiences (Lowry & Johnson, 1981; Smith et al., 1981).

Fairness of Grading

Within many schools, teachers are concerned that when students work cooperatively, and receive the same grade or a joint reward for their efforts, they will believe that the grading system is unfair. Having students work together on a joint product is often seen as being less fair to each student than is having each student work alone to produce an individual product for which he or she receives an individual grade. While students who "lose" in a competitive learning situation commonly perceive the grading system as being unjust and consequently disliking the class or teacher (D. Johnson & Johnson, 1975), it is of considerable importance that students within cooperative learning situations perceive the distribution of grades and other rewards as being fair. Otherwise they may withdraw from the group's efforts to achieve and maintain effective working relationships among members. Deutsch (1979) presents data from a number of experiments indicating that before a task is performed, there is a general perception that a

competitive grading system is fairest, but after a task is completed, a cooperative grading system where all group members receive the same grade or reward is viewed as the fairest. In a large-scale study of three urban and suburban school districts (D. Johnson & Johnson, in press-b, we found that the more students experienced long-term cooperative learning experiences, and the more cooperation they perceived in their classes, the more they believed that everyone who tries has an equal chance to succeed in class, that students get the grades they deserve, and that the grading system is fair. In an earlier study Wheeler and Ryan (1973) found that students prefer group grades over individual ones. Related to these results are our findings that the vast majority of students tend to prefer cooperative over competitive or individualistic learning experiences (D. Johnson & Johnson, 1976; D. Johnson, Johnson, Johnson, & Anderson, 1976; R. Johnson, 1976; R. Johnson et al., 1973; R. Johnson et al., 1974). In the real world of the classroom, joint grades and rewards seem to be perceived as fairer by students than traditional competitive and individualistic grading systems.

APPLICATIONS OF THE THEORY AND RESEARCH

The use of cooperative learning procedures is not new to American education. One of the most successful advocates of cooperative learning was Colonel Francis Parker. In the last three decades of the nineteenth century, Colonel Parker brought to his advocacy of cooperative learning enthusiasm, idealism, practicality, and an intense devotion to freedom, democracy, and individuality in the public schools. His fame and success rested on the vivid and regenerating spirit that he brought into the school room and on his power to create a classroom atmosphere that was truly cooperative and democratic. When he was superintendent of the public schools at Quincy, Massachusetts (1875-1880), he averaged more than 30,000 visitors a year to examine his use of cooperative learning procedures. Parker's instructional methods and philosophy emphasized that children are natural collaborators. The highest joy, after that of discovering the truth, was sharing the truth with classmates, and the proper motive of learning was that of helping others. Parker believed that children could only learn to love learning if their collaborative motives of desiring to share the products of their toil with their copartners were fully recognized. His methods of promoting cooperation among students dominated American education through the turn of the century.

It is perhaps time for a new advocacy of cooperative interaction to appear on the educational scene. For the use of cooperative learning procedures is one area of inquiry where social scientists and educators are mutually involved. In the previous sections of this chapter we have reviewed the theory on goal structures and a long-term research program we have been conducting to validate and extend the theory. The final criterion of productivity for this area of inquiry is whether it is applicable to and has profound implications for education. There are two types of applications; (1) *direct applications*, where specific procedures and curriculum packages are given to teachers to use in clearly detailed and preset ways, and (2) *conceptual applications*, where general procedures and principles are used by teachers to formulate a set of instructional procedures uniquely tailored by the teachers to their instructional needs, circumstances, subject areas, and students.

Training Assumptions

Based on the research on organization change within schools and the research on successful and unsuccessful educational innovation (D. Johnson, 1970, 1979), we have developed a conceptual application of the theory and research on goal structures and social interdependence (D. Johnson & Johnson, 1975). The initial assumptions we made in training teachers are:

(1) All three goal structures should be used appropriately in all classrooms. Despite the one-sidedness of the current research evidence, we remain convinced that there is an appropriate place for competitive and individualistic learning in the classroom and that it is in the integrated and coordinated use of the three goal structures that teachers need to be trained. We have hypothesized the conditions under which each of the three goal structures is appropriate (D. Johnson & Johnson, 1975, 1978).

(2) Cooperation is the most important educationally of the three goal structures, yet it is the least utilized currently in U.S. schools. A number of studies have indicated that cooperative learning is currenlty used only from 7% to 20% of the time in American schools. This differs significantly from our estimate that cooperative learning should be used at least 60% of the instructional time in most classrooms.

(3) A conceptual application is more effective than a direct application. Based on the research conducted on the failures and successes of innovation in the 1950s and 1960s (Berman & McLaughlin, 1978; Lawrence, 1974; McLaughlin & March, 1978), it may be concluded that while teachers need to understand clearly what cooperative learning is and be given concrete strategies and specific skills on how to implement

cooperative learning in their classrooms, effective training needs to allow teachers to adapt cooperative learning to their own subject areas, curriculum materials, circumstances, and students. Teachers need to do the work to adopt the strategies as their own rather than something they are asked to do. Prepackaged, direct applications are typically used for a while and then discontinued.

(4) Effective training programs have to be hands on, and job embedded, with on call help and support when teachers need it (Berman & McLaughlin, 1978; Lawrence, 1974; McLaughlin & March, 1978). Effective training needs to emphasize demonstrations, hands on trying out of the strategies, and feedback about how well the teachers are implementing cooperative learning. Ongoing training over a period of years needs to be provided when individual teachers want and need it. Experts who can provide support and assistance have to be on call to demonstrate, coteach, problem solve, and provide help when it is needed and wanted.

(5) Teachers and other staff members must be structured into professional support groups aimed at teaching each other how to use cooperative learning strategies effectively and how to use all three goal structures in an integrated and coordinated way.

Basic Model

Over the past ten years we have followed these assumptions in training teachers in both inservice and preservice situations. Our conceptual models of cooperative learning and the integrated use of all three goal structures have been field tested in a wide variety of preschool, elementary, secondary, college, and adult education settings. A conservative estimate is that we and our colleagues have trained over 12,000 teachers. We have built an international network of school districts involved in long-term efforts to implement cooperative learning. Within the United States these school districts range from California to Maine, from Florida to the state of Washington, and from Texas to the Dakotas. We have worked with a number of school districts in Canada, from British Columbia to Quebec, and there are active school districts in Norway, Sweden, and Australia.

Our implementation efforts are continuing. Field evaluations indicate that the appropriate use of cooperative learning procedures will promote the outcomes promised by the theory and the research.

Our basic model for working with these school districts is as follows. First, an awareness session of how cooperative learning may be structured is given to as many teachers within the district as will attend. We then recruit teams of teachers from the same school building, including the principal and special education teachers whenever possible. We

then begin a dual process of (1) training the teachers in how to use cooperative learning procedures and in how to use all three goal structures in an integrated way, and (2) building a professional support group aimed at teaching each other how to use all three goal structures appropriately and competently. In our training program we present the teachers with a model of the teacher's role and guidelines for each step. Teachers then spend time translating our model into their own procedures, use them for a while, provide help and assistance in implementing cooperative learning to each other, and tailor the procedures for their specific needs, circumstances, students, and curriculums. We view the process of a teacher learning how routinely to use the three goal structures appropriately and competently as taking from two to three years.

Elements of Cooperative Learning

In our conceptual application of cooperative learning procedures there are a set of basic elements that we recommend be always included in any cooperatively structured learning activity:

(1) *Positive interdependence.* This may be achieved through mutual goals (goal interdependence), divisions of labor (task interdependence), dividing materials, resources, or information among group members (resource interdependence), assigning students roles (role interdependence), and/or by giving joint rewards (reward interdependence). In order for a learning situation to be cooperative, students must perceive that they are positively interdependent with the other members of their learning group.

(2) *Face-to-face interaction among students.* There is no magic in positive interdependence in and of itself. It is the interaction patterns among students promoted by the positive interdependence that promotes instructional and socialization outcomes.

(3) *Individual accountability for mastering the assigned material.* The purpose of a learning situation is to maximize the achievement of each individual student. Feedback mechanisms for determining the level of mastery of each student are necessary for students to provide appropriate support and assistance to each other.

(4) *Appropriate use of interpersonal and small group skills.* Placing socially unskilled students in a learning group and telling them to cooperate will obviously not be successful. Students must be taught the social skills needed for high quality collaboration and be motivated to use them. These skills are detailed in D. Johnson (1981) and D. Johnson and F. Johnson (1982).

We additionally recommend that students periodically be given time and a structure for analyzing how well their learning groups are functioning and that cooperatively structured lessons are supplemented with appropriate competitive and individualistic ones. The specific components of the teacher's role are identified in D. Johnson and Johnson (1975).

The importance of cooperative learning procedures goes beyond achievement, positive attitudes toward subject areas such as science and math, and ability to think critically. The ability of all students to learn to work cooperatively with others is the keystone to building and maintaining stable marriages, families, careers, and friendships. Being able to perform technical skills such as reading, speaking, listening, writing, computing, and problem solving are valuable but of little use if the person cannot apply those skills in cooperative interaction with other people in career, family and community settings. Schools have long been places that have promoted unrealistic expectations of what career, family, and community life may be like. Most careers do not expect people to sit in rows and compete with colleagues without interacting with them. Team work, communication, effective coordination, and divisions of labor characterize most real life settings. It may be time for schools to more realistically reflect the reality of adult life. The success we have had in training teachers to use cooperative learning procedures is evidence that schools can in fact become realistic socializing and training organizations for our society.

CONCLUSIONS AND SUMMARY

Our society is facing both a socialization crisis and a "quality of work force" crisis. These crises point to two educational paradoxes where educational practice may be such to exacerbate the crises rather than contribute to their solution. The extensive use of competitive and individualistic learning structures in schools probably increases alienation and lower achievement compared with the effects of cooperatively structured learning. More specifically, as a result of the socialization crisis our society is faced with large numbers of children, adolescents, and young adults who

(1) may never be able to build and maintain productive careers or families;
(2) feel fragmented and disconnected from their associates and society;
(3) may be unable to interact competently with others who are from different ethnic, cultural, or social class backgrounds from them, or who are of the opposite sex, or who are handicapped;

(4) may be demoralized and view attempts to solve our national and world problems as hopeless and beyond our capabilities; and
(5) may be a permanent underclass cut off from the opportunity structures of our society.

As a result of the quality of work force crisis, our society is faced with large numbers of individuals who are technologically ignorant; unversed in even the simplest principles of chemistry, physics, and biology; and unable to manage the high degree of technology needed in a modern economy and society. In addition many lack the collaborative skills and psychological health necessary to be productive members of economic organizations.

Social psychology has often been accused of generating extensive but trivial knowledge. Critics claim that while social psychological theorizing and research has generated much information, this knowledge has not provided the concise answers required to solve even the simplest social problems. The study of cooperative, competitive, and individualistic learning situations presents the opposite case. It is one of the most developed areas of inquiry within psychology and education in terms of richness of theory, quality and quantity of research, and application to educational settings. There is a productiveness inherent in the interaction of theorizing about, research on, and application of goal structures and social interdependence that has stimulated further advances in each of the three areas and generated an excitement in interested social scientists and educators that occurs all too infrequently in schools and universities.

This chapter summarizes the results of ten years of theorizing, research, and application by the authors. We have attempted to systematically investigate the relative impact of cooperative, competitive, and individualistic learning experiences on both (1) socialization and cognitive and social development and (2) achievement and related attitudes. We begin with the assumption that the heart of socialization and development is the quality of the relationships children and adolescents are involved in. While adult-child relationships have traditionally been viewed as the primary source of socialization, it became apparent to us that peer relationships are just as important, and in many cases, may be more important than adult-child relationships. We reviewed the impact of relationships with other children and adolescents on such variables as the development of values, attitudes, and perspectives, prosocial and antisocial behavior, perspective-taking ability, and psychological health. Our theorizing then focused on the conditions under which relationships with other children and adolescents would be car-

ing, committed, constructive, supportive and productive, or would be indifferent, rejecting, and destructive.

We hypothesize that the process of acceptance results from interaction within a context of positive goal interdependence while the process of rejection results from interaction within a context of negative or no goal interdependence. We conducted a series of studies indicating that in fact there is more promotive interaction, greater feelings of psychological acceptance, more accurate perspective taking, a more differentiated and dynamic view of classmates and oneself, greater psychological success, more basic self-acceptance and higher self-esteem, greater liking toward classmates, and more positive expectations of rewarding future interaction, in cooperative than in competitive or individualistic learning situations. In addition, our research indicates that the relationships developed within cooperative learning situations generalize to free-time situations and that cooperative, compared with competitive and individualistic learning situations tend to promote more positive perceived relationships with the school staff, greater competency in interacting effectively with others, and greater psychological health. Thus it may be concluded that when the constructiveness of socialization and cognitive and social development is to be promoted, cooperative learning experiences are more effective than are competitive and individualistic ones.

From our research it may be concluded that achievement will be higher when learning situations are structured cooperatively rather than competitively or individualistically. There are a number of factors that may mediate the relationship between cooperation and achievement. While type of task may not matter a great deal, the internal processes that promote higher achievement in cooperative learning groups may include the promotion of high quality reasoning strategies, the constructive management of conflict over ideas and conclusions, increased time on task, more elaborative information processing, greater peer support and regulation, more active mutual involvement in learning, beneficial interaction between students of different achievement levels, and increased liking by group members for each other and the learning situation. In addition, the implications of these results for teachers interested in using cooperative learning procedures are as follows:

(1) Cooperative procedures may be used successfully with any type of academic task, although the greater the conceptual learning required, the greater will tend to be the efficacy of cooperation.

(2) Whenever possible, cooperative groups should be structured so that controversy among group members is possible and managed constructively.
(3) Students should be encouraged to keep each other on task and discuss the assigned material in ways that ensure elaborative rehearsal and the use of higher level learning strategies.
(4) Students should be encouraged to support each others' efforts to achieve, regulate each others' task related efforts, provide each other with feedback, and ensure that all group members are verbally involved in the learning process.
(5) As a rule, cooperative groups should contain low, medium, and high ability students.
(6) Positive relationships among group members should be encouraged.

In addition, our research indicates that cooperative learning experiences, compared with competitive and individualistic ones, promote greater competencies in critical thinking, more positive attitudes toward the subject areas being studied, and greater perceptions of the grading system being fair. The key to solving our quality of labor force crisis may be in substantially increasing the amount of time students learn cooperatively while they are in school.

We have enriched our theorizing and research by simultaneously training teachers throughout the United States and in several other countries in how to use cooperative learning procedures effectively. The fact that the procedures necessary for teachers to use the three goal structures appropriately have been specified and field tested in a variety of settings adds to the richness of this area of inquiry. It also highlights the current discrepancy between what educators commonly do and what our current level of knowledge about effective instruction recommends. We need to reconcile school practice with current research, and encourage a healthy portion of instruction to be cooperative.

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COOPERATIVE LEARNING:
THE POWER OF
POSITIVE GOAL INTERDEPENDENCE

David W. Johnson
and
Roger T. Johnson

University of Minnesota

Cooperative Learning: The Power of Positive Goal Interdependence

David W. Johnson and Roger T. Johnson

University of Minnesota

Whether it is in preschool, elementary or secondary school, or college learning situations, there are three important types of interaction: the interaction between the teacher and the students, the interaction between the students and the curriculum materials, and the interaction among students. Both the teacher's role and the curriculum have received a great deal of attention in instructional theory, but the student-student interaction patterns have largely been ignored and often mismanaged by educators.

Teachers can structure student learning goals so that students are in the same boat together trying to help each other learn, are in a win-lose struggle to see who is superior and who is inferior, or are all facing the learning situation alone. By structuring student learning goals cooperatively, competitively, or individualistically, teachers control whether students are positively interdependent, negatively interdependent, or independent of each other during instructional activities. Technically, cooperative learning is based on a positive correlation among goal attainments, competitive learning is based on a negative correlation among goal attainments, and individualistic learning is based on independent goal attainments (Johnson & Johnson, 1975). The way in which teachers structure student learning goals determines how students interact with each other. Student interaction patterns are a major determinant of the cognitive and affective outcomes of instruction. The first step during teaching is always setting the appropriate goal structure to maximize the achievement of instructional goals. Setting the appropriate goal structure for each lesson should become as automatic for teachers as turning the key to start a car.

In this introduction we summarize some of the major research findings on the relative effects of cooperative, competitive, and individualistic goal structures and discuss specific procedures teachers can use in establishing cooperative learning situations. Keep in mind that while we emphasize the use of cooperatively structured learning because of its importance and underutilization in the past, all three goal structures can be used appropriately and effectively. Teachers are well-advised to use all three goal structures and to instruct students in the basic skills necessary to function in all three types of situations. The importance and utility of the cooperatively structured learning does not mean that competitive and individualistic instruction should never be used.

Interaction Patterns And Outcomes

A great deal of research indicates that the appropriate use of cooperative, competitive, and individualistic goal structures is not only an important instructional strategy, it may be the most powerful in terms of affecting both cognitive and affective learning outcomes. Ignoring this research (and their common sense) teacher educators have often misinformed and poorly prepared teachers to use all three goal structures in systematic and appropriate ways. In our book for teachers (Johnson & Johnson, 1975) and in a previous journal article (Johnson & Johnson, 1974) we reviewed more than 350 studies on the effects of cooperative, competitive, and individualistic goal structures. We now have collected over 600 studies that demonstrate that with any curriculum, with any age of student (from preschool through graduate school), and in any subject area, appropriately structuring learning goals is an extremely powerful teaching strategy and has significant

effects on a broad range of learning outcomes. Without a doubt most classroom learning should be structured cooperatively. Some of the major research findings are (Johnson & Johnson, 1974, 1975; Johnson, 1979):

1. The successful mastery, retention, and transfer of concepts, rules, and principles is higher in cooperatively structured learning than in competitively or individualistically structured learning. For the day to day conceptual and problem-solving learning, cooperation promotes higher quality and more quantity of learning. This is especially true for students of average and low ability, although the learning of gifted students is in no way lessened by spending much of their time learning in heterogeneous cooperative learning groups.
2. Student motivation to learn will be higher, more intrinsically-oriented, and less extrinsically-oriented in cooperative learning situations than in competitive or individualistic ones.
3. The cognitive and social development of students is more facilitated by cooperative than by competitive or individualistic learning experiences. The ability to take other people's perspectives, to communicate effectively, to resolve conflicts, and to relate effectively are all encouraged more by cooperative than by competitive or individualistic experiences.
4. Student attitudes toward teachers, other school personnel (principals, teacher aides, counselors), subject areas, and school are more positive in cooperative compared with competitive and individualistic learning experiences. Not only do students who are learning cooperatively like teachers better, they feel more accepted personally and supported academically by teachers.

5. Students like their classmates more in cooperative than in competitive or individualistic learning situations, including classmates from different ethnic groups, the opposite sex, different social classes, and classmates who are intellectually and physically handicapped. Students in cooperative learning situations, furthermore, feel more supported and accepted by their classmates than do students learning competitively or individualistically.
6. Student self-esteem and psychological health will generally be more positive in cooperative than in competitive and individualistic learning situations.

These research findings, along with other equally powerful and important findings reported in Johnson and Johnson (1975) and Johnson (1979), all indicate the importance of cooperative learning experiences for both cognitive and affective instructional outcomes. Yet the procedures for structuring learning situations cooperatively are not well known by teachers. One of the purposes of this handbook is to illustrate such procedures. For a more complete discussion, see Johnson and Johnson (1975).

Structuring Cooperative Learning

In our work with teachers in many parts of the country we have observed teachers who believe that they are implementing cooperation when in fact they are missing its essence. Cooperation is <u>not</u> having students sit side by side at the same table. Cooperation is <u>not</u> having students discuss an assignment before each has to do it individually. Cooperation is <u>not</u> having students do a task individually with instructions that the ones who finish first are to help the slower students. Cooperation is <u>not</u> having students share

materials before a competitive test. Cooperation is much more than being physically near other students, discussing material with other students, helping other students, or sharing materials with other students, although each of these is important in cooperative learning.

The essence of cooperative learning is assigning a group goal such as producing a single product (e.g., a single set of answers to math problems or a single theme or report) or achieving as high a group average on a test as possible, and rewarding the entire group on the basis of the quality or quantity of their product according to a fixed set of standards. The teacher establishes a group goal and a criteria-referenced evaluation system, and rewards group members on the basis of their group performance. Teaching a cooperative lesson, however, involves more than just setting up a cooperative goal structure. Here is a brief summary of the teacher's role in cooperatively structured learning:

1. As far as possible, specify the instructional objectives.
2. Select the group size most appropriate for the lesson. With young students the size of the group may need to be two or three members. With older students larger groups are possible. The optimal size of a cooperative group will vary according to the resources needed to complete the lesson or project (the larger the group the greater the resources available), the cooperative skills of group members (the less skillful the group members, the smaller the group should be), and the nature of the task.
3. Assign students to groups. Usually, teachers will wish to maximize the heterogeneity in the group. Random assignment usually ensures a good mixture of males and females, highly verbal and passive students,

3. (continued) leaders and followers, and enthusiastic and reluctant learners. And sometimes teachers may wish to group students around their interests. Ofter teachers may wish to assign students to groups so that students high, low, and average in expertise are in the same group.
4. Arrange the classroom. Teachers will wish to cluster the groups of students so that they will not interfer with each other's learning. Within the groups students should be able to see the relevant materials, converse with each other, and exchange materials and ideas. Usually a circle is best, and long tables should be avoided.
5. Provide the appropriate materials. When students are first learning how to cooperate, or when some students are having problems in contributing to the group's work, teachers may wish to arrange the materials like a jig-saw puzzle and give each group member one piece. A group, for example, could be writing a report on Abe Lincoln, with each member having material on a different part of his life. In order for the report to be compelted, all group members will have to contribute their material and ensure it is incorporated into the group's report.
6. Explain the task and the cooperative goal structure. The task may be the successful completion of an assignment in math, science, language arts, or social studies. To explain the cooperative goal structure teachers will need to communicate that there is a group goal, a criteria-referenced evaluation system, and all group members will be rewarded on the basis of the quality of the group's work.
7. Observe the student-student interaction. Just because the teacher asks students to cooperate with each other does not mean they will always do

7. (continued) so. Much of the teacher's time in cooperative learning situations is spent observing student groups to see what problems they are having in functioning cooperatively. For specific procedures for observing, and for specific observation instructions, see Johnson and R. Johnson (1975) and Johnson and F. Johnson (1975).
8. Intervene as a consultant to help the group solve its problems in working together effectively and to help group members learn the interpersonal and group skills necessary for cooperating. These skills are detailed in Johnson, 1972, 1978) and in Johnson and F. Johnson (1975), along with activities to be used in teaching the skills.
9. Evaluate the group products, using a criteria-referenced evaluation system. The procedures for setting up and using such an evaluation system are given in Johnson and R. Johnson (1975).

Barriers Against Using Cooperatively Structured Learning

There are classroom pressures that mitigate against the use of cooperatively structured learning. One is the inadequency of students' cooperative skills. Many students have never learned how to cooperate with others and must to taught to do so. Thus the first experience of teachers who try structuring cooperative learning is that their students cannot work together. Teaching cooperative skills becomes an important prerequisite for academic learning, not just something to be thrown in when there is spare time.

A second pressure against the use of cooperatively structured learning is the competitive myths held by many parents and educators. These myths are based on the social Darwinian view that we live in a survival of the fittest

world dominated by the law of fang and claw. Despite popular belief, society is not competitive, motivation is not based on competition, competitive and individualistic experiences do not build character and strong identities, and self-esteem is not increased either by competing or working alone.

A third barrier to the use of cooperatively structured learning is the pressure for covering a specified amount of curriculum material within a certain time period. Under the pressure for cognitive accountability that recognizes only what page a student is on by Christmas it seems difficult to many teachers to take the time necessary to teach cooperative skills so that students can learn cooperatively. As has long been evident from the social psychological research on productivity (Watson & Johnson, 1972), it is precisely the students who take time to learn cooperative skills and who stop to resolve difficulties in working together, who will achieve the most in the long run. Stopping to teach cooperative skills in September does mean that students will master more material by Christmas.

Back To Basics: The Importance Of Cooperative Learning Experiences

The importance of cooperative learning experiences goes beyond improving instruction, increasing student achievement, and making life easier and more productive for teachers, although these are worthwhile activities. Cooperation is as basic to humans as the air we breath. The ability of all students to cooperate with other people is the keystone to building and maintaining stable families, career success, neighborhood and community membership, important values and beliefs, friendships, and contributions to society. Knowledge and

skills are of no use if the student cannot apply them in cooperative interaction with other people. It does no good to train an engineer, secretary, accountant, teacher, or mechanic, if the person does not have the cooperative skills needed to apply the knowledge and technical skills in cooperative relationships on the job, in the family and community, and with friends. The most logical way to emphasize the use of cooperative skills in task situations is to structure the majority of academic learning situations cooperatively. Students can then learn technical knowledge and skills in a realistic setting of having to work cooperatively with their classmates. There is nothing more basic than learning to use one's knowledge in cooperative interaction with other people.

Concluding Note

Effective teaching requires structuring learning cooperatively the majority of the time. Yet there is an important place for competitive and individualistic goal structures within the classroom. The major problems with competition and individualistic efforts result from their being inappropriately and over used. In addition to cooperative skills, students need to learn how to compete for fun and enjoyment, win or lose, and how to work independently and follow through on a task until it is completed. The natural place for competitive and individualistic efforts is within the umbrella of cooperation. The predominant use of cooperation reduces the anxiety and evaluation apprehension associated with competition and allows for the use of individualistically structured learning activities as part of a division of labor within cooperative tasks. The relative importance of

cooperative, competitive, and individualistic goal structures and their relationship to one another can be summarized in one statement: Cooperation is the forest, competition and individualistic efforts are the trees.

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Cooperation in Learning:

Ignored But Powerful

Roger T. Johnson and David W. Johnson

University of Minnesota

202 Pattee Hall

Minneapolis, MN 55455

Cooperative Learning Project

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COOPERATION IN LEARNING: IGNORED BUT POWERFUL

Roger T. Johnson and David W. Johnson

University of Minnesota

"It is essentially the experience, the means, that fits human beings not to their external environment so much as to one another. Without the cooperation of its members society cannot survive, and the society of man has survived because the cooperativeness of its members made survival possible--it was not an advantageous individual here and there who did so, but the group. In human societies the individuals who are most likely to survive are those who are best enabled to do so by their group."

Ashley Montagu, 1965

How the students perceive each other and interact with one another is a neglected aspect of instruction. Much training time is devoted to helping teachers arrange appropriate interactions between students and materials (i.e., textbooks, curriculum programs, etc.), and some time is spent on how teachers should interact with students, but how students should interact with one another is relatively ignored. It shouldn't be. How teachers structure student-student interaction patterns will have a lot to say about how well the students learn, how they feel about school and the teacher or professor, how they feel about each other, and their self-esteem.

There are three basic ways students can interact with each other as they learn. They can compete to see who is "best"; they can work individualistically on their own toward a goal

without paying attention to other students, or they can work cooperatively with a vested interest in each other's learning as well as their own. Of the three interaction patterns, competition is presently the most dominant. The research indicates that a vast majority of students in the United States view school as a competitive enterprise where you try to do better than the other students. This competitive expectation is already fairly wide spread when students enter school and grows stronger as they progress through school (Johnson & Johnson, 1975). In the last 15 years, the individualistic interaction pattern has been the most talked about but has never really caught on. Cooperation among students where they celebrate each other's successes, encourage each other to do homework, and learn to work together regardless of ethnic backgrounds, male or female, bright or struggling, handicapped or not, is rare.

Basic Definitions

Even though these three interaction patterns are not equally effective in helping students learn concepts and skills, it is important that students learn to interact effectively in each of these patterns. Students will face situations where all three interaction patterns are operating, and they will need to be able to be effective in each situation. They also should be able to select an appropriate interaction pattern suited to the situation. An interpersonal, competitive situation is characterized by negative goal interdependence, where, when one person wins, the others lose. Do you remember the "Spelling Bee" where you spelled each other down or raced others to get the correct answers on the blackboard for a math problem? In an individualistic learning situation, students are independent of one another and are

working toward a set criteria where their success depends on their own performance in relation to an established criteria. The success or failure of other students does not affect their score. In spelling if all students are working on their own and any student who correctly spells 90% or more words passes, it would be an individualistic structure. In a cooperative learning situation, interaction is characterized by positive goal interdependence with individual accountability. Positive goal interdependence requires acceptance by a group that they "sink or swim together." A cooperative spelling class is one where students are working together in small groups to help each other learn the words in order to take the spelling test individually on Friday. Each student's score in the test is increased by bonus points earned by the group. In that situation a student needs to be concerned with how she or he spells and how well the other students in his or her group spell. This cooperative umbrella can also be extended over the entire class if bonus points are awarded to each student when the class can spell more words than a reasonable, but demanding, criteria set by the teacher.

There is a difference between "having students work in a group" and structuring students to work cooperatively. A group of students sitting at the same table doing their own work, but free to talk with each other as they work is not structured to be a cooperative group as there is no positive interdependence. Perhaps it could be called individualistic learning with talking. There needs to be an accepted common goal on which the group will be rewarded for their efforts. In the same way, a group of students who have been assigned to do a report where only one student cares, does all the work and the others go along for a free ride, is not a cooperative group. A coop-

erative group has a sense of individual accountability that means that all students need to know the material or spell well for the group to be successful. Putting students into groups does not necessarily gain positive interdependence and/or individual accountability; it has to be structured and managed by the teacher or professor.

The Research Suggests . . .

When examining the research comparing students learning cooperatively, competitively, and individualistically, a very interesting paradox develops. Common practice in schools today has teachers striving to separate students from one another and have them work on their own. Teachers continually use phrases like, "Don't look at each other's papers!", "I want to see what you can do, not your neighbor!" or "Work on your own!". Having students work alone competing with one another for grades or working on their own to reach a set criteria are the dominant interaction patterns among students in classrooms today. The paradox is that the vast majority of the research comparing student-student interaction patterns indicates that students learn more effectively when they work cooperatively (Johnson & Johnson, 1975; Johnson et al., 1981; Johnson, 1981). The data suggests:

A) Students achieve more in cooperative interaction than in competitive or individualistic interaction. With several colleagues, we recently did a meta-analysis on all the research studies that compare cooperation, competition and individualistic learning (122 studies from 1924 to 1980). The results indicated that cooperation seems to be much more powerful in producing achievement than the other interaction patterns and

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the results hold for several subject areas and a range of age groups from elementary school age through adult (Johnson et al., 1981).

B) Students are more positive about school, subject areas, and teachers or professors when they are structured to work cooperatively (Johnson & Johnson, 1975; Johnson, 1981).

C) Students are more positive about each other when they learn cooperatively than when they learn alone, competitively, or individualistically; regardless of differences in ability, ethnic background, handicapped or not (Johnson & Johnson, 1975, 1980, 1981).

D) Students are more effective interpersonally as a result of working cooperatively than when they work alone, competitively or individualistically. Students with cooperative experiences are more able to take the perspective of others, are more positive about taking part in controversy, have better developed interaction skills, and have a more positive expectation about working with others than students from competitive or individualistic settings (Johnson & Johnson, 1975, 1978; Johnson, 1980).

With all the data that is available in this area (we now have collected over 800 studies), it is surprising that practice in classrooms is not more consistent with research findings.

Structuring Cooperative Interaction

One of our first tasks, an on-going one, has been to translate the concept of cooperation into a set of practical strategies for use by teachers and professors. We are presently working with over twenty school districts intensively and several colleges and universities on training staff in the strategies of structuring cooperative interactions and teaching students the skills needed to work effectively with others (communication, leadership, trust building, and conflict resolution). A basic model has developed which focuses on a set of decisions a teacher needs to make before a lesson (i.e., group size), what is said to students to "set" the cooperative goal structure, and the role of the teacher after students are working (Johnson & Johnson, 1975; Lyons, 1980; Roy, 1982). An outline of the model includes:

A) Select a lesson. Although almost any learning situation can be adapted to be cooperative, competitive or individualistic, the teacher needs to select a place to start with cooperation. We encourage teachers to start with one lesson and build slowly as they and their students get accustomed to the "new" structure. Cooperative learning groups have been shown to be especially effective where problem solving, conceptual learning, or divergent thinking are required.

B) Make the following decisions:

1) Select the group size most appropriate for the lesson. The optimal size of a cooperative group will vary according to resources needed to complete the assignment (the larger the group, the more resources available); the

cooperative skills of the group members (the less skillful the members the smaller the groups should be); the amount of time available (the shorter the time, the smaller the group should be); and the nature of the task.

2) Assign the students to groups. For a variety of reasons, heterogeneous groups tend to be more powerful than extreme homogeneity. A lot of the power for learning in cooperative groups comes from the need for discussion, explanation, justification, and shared resolution on the material being learned. Quick consensus without discussion does not enhance learning like having different perspectives discussed, arguing different alternatives, explaining to members who need help and thoroughly delving into the material.

3) Arrange the classroom. Group members need to be close together and facing each other, and the teacher as well as members of other groups need to have clear access to all groups. Within the groups, members need to be able to see the relevant materials, converse with each other easily, and exchange materials and ideas.

4) Provide the appropriate materials. Providing one answer sheet to be turned in by the group with everyone's signature is one way to emphasize the positive interdependence. Another technique is to "jigsaw" the materials so that each student has part and responsibilities associated with their piece

of the assignment (i.e., reading to group, researching and reporting back for discussion, etc.).

C) Explain the task and cooperative goal structure to students. A clear and specific description of the task needs to be given coupled with an explanation of the group goal. The group goal communicates that group members are in this together and need to be concerned with other group members' understanding of the material as they are with their own. The reward system needs to be consistent with the structure. Students will more easily understand the group goal if they are turning in a single paper that each group member is able to defend, or can receive bonus points on the basis of how well each group member does, or will be able to skip the next quiz (or get extra recess) on the basis of a group score. It is also important to establish a criteria for success as a classroom in order to make intergroup cooperation possible and extend the cooperativeness across the class. It is also necessary to specify the basic behaviors you expect to see in the groups so that students have an "operational" definition of what cooperation is.

D) When the groups are working, the teacher needs to monitor carefully how well the groups are functioning; what skills are lacking, both related to the subject matter and to the interaction; set up a way for the groups to process how well they functioned and discuss how to do even better; and intervene where problems are serious to help groups work out their

own problems. It is probable that some specific instruction will need to be focused on interpersonal skills as students will not have necessarily learned how to work with others effectively. It is important to note that the cooperative group does not take the place of instruction, but instead translates it and makes it useful. The teacher will still need to introduce new material and students will need to research and study so that they have something to share with their peers within the groups.

Teachers in the school districts and colleges where we have been working have mastered the strategies for structuring cooperative learning groups and the techniques for teaching interpersonal skills so that now they automatically can set up lessons cooperatively and monitor them effectively. In addition, they have learned more carefully to set up appropriate individualistic and competitive learning situations.

Current Activities

Over the last three years we have established a cooperative learning center at the University of Minnesota, sponsored primarily by money from the Office of Special Education in Washington, D.C., aimed at assisting teachers to create a classroom climate for acceptance of differences. Two large grants relating to the mainstreaming of handicapped students into regular classroom settings focus on a continuing set of field studies examining the issue of acceptance and a training grant to work with school districts from San Diego Public Schools to South Brunswick, New Jersey, including Jefferson County, Colorado; Madison, Wisconsin; a consortium of districts in central Vermont; and Hopkins, Moundsview, and St. Paul districts in the Twin Cities.

This work in based on three assumptions: that building positive relationships between handicapped and nonhandicapped students in the regular classroom is the central purpose of mainstreaming; that cooperation among a school staff is as important as cooperation among students and, in this case, especially between special education and regular education teachers; and that mainstreaming is not something "special" that is being done for a few handicapped students, but that all students, the shy and the bright and the average, need to be mainstreamed with each other.

The logic of structuring heterogeneous, cooperative learning groups to assist in accomplishing successful mainstreaming is straight-forward. When students work with each other cooperatively, even if they don't know each other or like each other originally, they have to invest themselves in each other's learning if they want to be successful. This tends to build realistic and multifaceted views of each other and encourages acceptance and positive feelings (Deutsch, 1962; Johnson & Johnson, 1980). It is unrealistic to think that mainstreaming students into a regular classroom where they compete with other students will build acceptance. It is more likely to increase stereotyping, discrimination, and prejudice (Johnson & Johnson, 1979). It also does not make sense to mainstream handicapped students into regular classroom settings and have them work alone, individualistically, where they can be seen but no interaction takes place. The part of mainstreaming that is vital to building positive relationships between handicapped and nonhandicapped students is the social dynamics of carefully structured cooperative learning groups. In addition, achievement of handicapped and nonhandicapped students tends to improve and nonhandicapped students develop increased empathy,

altruism, and the ability to view situations from a variety of perspectives (Johnson & Johnson, 1979, 1981). Our research on ethnic integration shows very similar positive results for heterogeneous cooperative learning groups, and we are presently working with a number of public school and higher education settings in that area (Johnson & Johnson, 1981).

Back to the Basics

Our research and the research of many others has established that having students work together cooperatively is a powerful way for them to learn and has positive effects on the classroom climate. This has been verified by teachers in classrooms from pre-school through graduate school. However, the importance of emphasizing cooperative learning groups in classrooms goes beyond achievement, acceptance of differences, and positive attitudes. The ability of all students to learn to work cooperatively with others is the keystone to building and maintaining stable marriages, families, careers, and friendships. Being able to perform technical skills such as reading, speaking, listening, writing, computing, problem solving, etc., are valuable but of little use if the person cannot apply those skills in cooperative interaction with other people in career, family, and community settings. The most logical way to emphasize the use of students' knowledge and skills within a cooperative framework, such as they will meet as members of society, is to spend much of the time learning those skills in cooperative relationships with each other. We need to get back to the basics, reconcile school practice with current research, and encourage a healthy portion of instruction to be cooperative.

AUTHOR'S NOTE

We know something about interacting. In the first place we are brothers about a year and one-half apart in age, from a family of seven children growing up on a farm in Indiana. We have always been interested in people and how they interact with one another. We have had to be. Since 1972, shortly after we were brought back together from the east and west coasts to become part of the College of Education faculty, we have set aside our battles over who "sat by the window in the car last" and worked cooperatively. We became very involved in examining student-student interaction in the classroom and what effects different interaction patterns have on classroom environment and learning. Since one of us had a background in public school teaching with a high interest in instruction, and the other is a social psychologist with interest in social interactions and their effects, it was a natural collaboration, not only because we shared the same parents, but also because of our complementary academic backgrounds.

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COOPERATIVE, COMPETITIVE, AND INDIVIDUALISTIC LEARNING

David W. Johnson

and

Roger T. Johnson

University of Minnesota

Cooperative, Competitive, and Individualistic Learning

DAVID W. JOHNSON
AND
ROGER T. JOHNSON
University of Minnesota

In order to teach an instructional unit successfully, teachers need to know what outcomes they hope to achieve. After their instructional goals are formulated appropriately, a decision must be made as to the type of goal interdependence to be structured among students as they learn. A *goal* is a desired state of future affairs (such as the completion of a math assignment) and a *goal structure* specifies the type of goal interdependence existing among students as they work toward goal accomplishment. Teachers can structure student learning goals so that students are in pairs or small groups helping each other master the assigned material, in a win-lose struggle to see who is best, or on their own learning individualistically. There are three goal structures that teachers may use during instruction (Deutsch, 1962; Johnson & Johnson, 1975): cooperative (positive goal interdependence), competitive (negative goal interdependence), and individualistic (no goal interdependence). A *cooperative* goal structure exists when the students perceive that they can obtain their goal if and only if the other students with whom they are linked obtain their goals. An example of this "sink or swim together" situation is where a group of students are working together to answer a set of comprehension questions after reading a story. A *competitive* goal structure exists when students perceive that they can obtain their goals if, and only if, the other students with whom they are linked fail to obtain their goals. An example of this "am I better than you" situation is a math quiz where students are rank ordered from the student with the most correct answers to the student with the least number of correct responses. An *individualistic* goal structure exists when the achievement of students' learning goal is unrelated to the goal achievement of other students. An example of this "we're all in this alone" situation is a match assignment that students complete by themselves, without interacting with other students, and that is evaluated on a criterion-referenced system so that the achievement of one student has no effect (positive or negative) on the achievement of other students.

In the ideal classroom all three goal structures would be appropriately used. All students would learn how to work cooperatively with other students, compete for fun and enjoyment, and work autonomously on their own. Most of the time, however, students would work on instructional tasks within the goal structure that is most productive for the type of task to be done and for the cognitive and affective outcomes desired. It is the teacher who decides which goal structure to implement within each instructional activity. *The way in which teachers structure learning*

goals determines how students interact with each other and with the teacher. The interaction patterns, in turn, determine the cognitive and affective outcomes of instruction. There is no aspect of teaching more important than the appropriate use of goal structures.

In this article we first review the traditional domination of competition in American classrooms and then summarize the results of the authors' research as well as the research conducted by our colleagues and students on the instuctional use of cooperative, competitive, and individualistic goal structures. We then summarize the conditions under which each goal structure can be appropriately used and outline the procedures for implementing a cooperative goal structure during instruction.

The Traditional Use of Competition

Once a child enters the first grade there is great concern whether his performance is equal or better than that of other children his age. Across the country, students are regularly compared to see who is superior and who is inferior. To "know more than someone else" is taken as a sign that one is better, more intelligent, superior to others and knowledge is considered a possession that distinguishes the superior from the inferior. The competitive goal structure so pervades American education that it is sometimes difficult to see how we can get along without it. Most educators don't realize how deeply embedded this goal structure is in our daily school routines. Constantly encouraging students to outperform their peers has had considerable socializing effect, as indicated by the facts that American children are more competitive than are children from other countries and become more competitive the longer they are in school or the older they become (Johnson & Johnson, 1975). To verify that in fact the competitive emphasis of schools was perceived by students, we conducted a series of studies in which elementary and secondary students were interviewed (D. Johnson & Johnson, 1976; R. Johnson, 1976; R. Johnson, Johnson, & Bryant, 1973). The results of these studies clearly indicate that the vast majority of students perceive school as being competitive, yet they would prefer school to be cooperative.

Nelson and Kagan (1972) state that the tendency for children in the United States to compete often interferes with their capacity for adaptive cooperative problem solving. They found that American students so seldom cooperate spontaneously on the tasks included in their research that it appears that the environment provided for these children is barren of experiences that would sensitize them to the possibility of cooperation. Most American children engage in irrational and self-defeating competition, and the American child (in comparison with children from other countries) is even willing to reduce his own reward in order to reduce the reward of a peer (Nelson & Kagan, 1972). Students may even believe that helping someone in distress is inappropriate and is disapproved of by others (Staub, 1971).

Outcomes of Instruction

The type of goal interdependence teachers structure among students will determine how students interact with each other and the teacher. These interaction patterns, in turn, will determine the cognitive and affective outcomes of instruction. There has been a great deal of research on the relationship between cooperative, competitive, and individualistic goal structures and the cognitive and affective outcomes of instruction, and it is summarized by the authors of this chapter (Johnson & Johnson, 1974, 1975). Rather than repeat this review, this chapter focuses on summarizing much of our own research on goal structures. The instructional outcomes our research has examined are:

1. Achievement is a variety of learning tasks:

2. The ability to understand the perspectives of others;
3. The effects of disagreement among students within a cooperative or competitive context;
4. Students' motivation to learn;
5. Students' emotional involvement in learning;
6. Students' attitudes toward teachers and other school personnel;
7. Students' attitudes toward each other;
8. Students' self-esteem;
9. Students' psychological health;
10. Students' attitudes toward interdependence with others; and
11. The relationship between goal structures and types of teaching methods.

These outcomes are discussed in the following pages.

Type of Task

The successful mastery, retention, and transfer of concepts, rules, and principles is higher in cooperatively structured learning than in competitive or individualistic learning situations (Johnson & Johnson, 1975; Davis, Laughlin, & Komorita, 1976). While there are dozens of studies confirming the superiority of cooperative over competitive and individualistic learning structures on aspects of achievement, several studies did indicate that for simple, mechanical, previously mastered tasks that require no help from other students, competition promotes greater quantity of output than does cooperation or individualistic efforts. Believing that the research on achievement should focus more specifically on the type of task being studied, the authors and their students conducted a series of studies examining the relative effects of cooperative, competitive, and individualistic goal structures on achievement on a variety of school related tasks (Garibaldi, 1976; R. Johnson & Johnson, in press; Johnson, Johnson & Skon, in press, 1978). The studies focused on white first- and fifth-grade students from both urban and suburban settings and black high school students from an urban setting. The results are surprisingly consistent. On mathematical and verbal drill-review tasks, spatial-reasoning and verbal problem-solving tasks, pictorial and verbal sequencing tasks, tasks involving the comparison of the attributes of shape, size, and pattern, and a knowledge-retention task, cooperation promoted higher achievement than did either competition or individualistic efforts. On a specific-knowledge-acquisition task both cooperation and competition promoted higher achievement than did individualistic efforts. These findings are all the more important as care was taken to optimize the constructiveness of the operationalizations of competitive and individualistic instruction.

Perspective-Taking

One of the most critical competencies for cognitive and social development is social perspective-taking. Social perspective-taking is the ability to understand how a situation appears to another person and how that person is reacting cognitively and emotionally to the situation. The opposite of perspective-taking is egocentrism, the embeddedness in one's own viewpiont to the extent that one is unaware of other points of view and of the limitations in one's perspective. Perspective-taking is a central process underlying almost all interpersonal and group skills. It has been found to be related to effective presentation of information, effective comprehension of information, the constructive resolution of conflicts, willingness to disclose information on a personal level, effective group problem-solving, cooperativeness, positive attitudes toward others within the same situation, autonomous moral judgement, intellectual and cognitive development, and social adjustment (see Johnson, 1975c for a research review.)

An important instructional question is what goal structure is most conducive to the development of social perspective-taking abilities.

A series of studies have found that cooperativeness is positively related to the ability to take the emotional perspective of others (Johnson, 1975a, 1975b). Cooperative learning experiences, furthermore, have been found to promote greater cognitive and emotional perspective-taking ability than either competitive or individualistic learning experiences (Bridgeman, 1977; Johnson, Johnson, Johnson, & Anderson, 1976).

Controversy

An important aspect of instruction is the degree to which intellectual disagreements can be fostered which create conceptual conflict within students and thereby increase their motivation to seek out new information and reorganize what they know. Tjosvold and Johnson (1978) conducted a study to examine the effects of controversy on such motivation within a cooperative or a competitive context. They found that while controversy in either a cooperative or a competitive context resulted in greater motivation to seek out new information than did a discussion lacking any controversy, the effect was stronger in a competitive rather than a cooperative context. Although competition was related to greater conceptual conflict and information seeking behavior resulting from an intellectual disagreement, the competition produced a closed-minded orientation in which participants felt unwilling to make concessions to the other's viewpoint, perceived a high level of disagreement between themselves and their opponent viewed themselves as being closed-minded in listening to their opponent, and viewed their opponent as being closed-minded. Greater internal distress was experienced when controversy occurred within a competitive (compared with a cooperative) context.

Motivation

Motivation is most commonly viewed as a combination of perceived likelihood of success with the incentive for success. The greater the likelihood of success and the more important it is to succeed, the higher the motivation. Success that is intrinsically rewarding is seen as being more desirable for learning than having students believe that only extrinsic rewards are worthwhile. Elsewhere the authors have reviewed evidence indicating that there is a greater perceived likelihood of success and that success is more important in cooperative than in competitive and individualistic learning situations (Johnson & Johnson, 1975). More recently several of our studies have examined aspects of the relationship between the three goal structures and motivation.

The more cooperative students' attitudes, the more they see themselves as being intrinsically motivated, perservering in pursuit of clearly defined learning goals, believing that it is their own efforts that determine their school success, wanting to be good students and get good grades, and believing that ideas, feelings and learning new ideas are important and positive (Johnson & Ahlgren, 1976; Johnson, Johnson, & Anderson, 1978). These studies also indicate that the more competitive students' attitudes, the more they see themselves as being extrinsically motivated in elementary and junior high schools. Competitive attitudes are, however, somewhat related to intrinsic motivation, to being a good student and to getting good marks in senior high school. Individualistic attitudes tend to be unrelated to all measured aspects of motivation to learn. There is also experimental evidence which indicates that cooperative learning experiences, compared with individualistic ones, will result in more intrinsic motivation, less extrinsic motivation, and less need for teachers to set clear goals for the students (Johnson, Johnson, Johnson, & Anderson, 1976). Being part of a cooperative learning group has been found to be related to a high subjective probability of academic success and continuing motivation for further learning by taking more advanced courses in the subject area studied (Gunderson & Johnson, 1978).

Involvement in Instructional Activities

Students are expected to become involved in instructional activities and benefit from them as much as they can. There is evidence that the more cooperative students' attitudes, the more they can see themselves as expressing their ideas and feelings in large and small classes and as listening to the teacher, while competitive and individualistic attitudes are unrelated to indices of involvement in instructional activities (Johnson & Ahlgren, 1976; Johnson, Johnson, & Anderson, 1978). There is evidence that cooperative learning experiences, compared with competitive and individualistic ones, result in greater liking for talking to the class about one's ideas (Johnson, Johnson, Johnson, & Anderson, 1976; Wheeler and Ryan, 1973). Cooperative learning experiences, compared with competitive and individualistic ones, promote greater willingness to present one's answers and more positive feelings toward one's answers and the instructional experience (Garabaldi, 1976; Gunderson & Johnson, 1978), as well as more positive attitudes toward the instructional tasks and subject areas (Garabaldi, 1976; Gunderson & Johnson, 1978; R. Johnson & Johnson, in press; Johnson, Johnson, & Skon, in press; Wheeler & Ryan, 1973).

An interesting finding related to involvement in instructional activities is that while both competitive and individualistic attitudes are related to wanting students to be constrained by teachers (wanting teachers to enforce rules, wanting teachers to keep students quiet, wanting teachers to communicate clear goals and instructions), they are unrelated to valuing school rules (Johnson & Ahlgren, 1976; Johnson, Johnson, & Anderson, 1978). Cooperativeness, on the other hand, is unrelated to wanting students to be constrained in junior and senior high school, yet consistently related to viewing school rules as being important and pleasant.

Attitudes Toward School Personnel

There are many reasons why it is important for students to have positive attitudes toward school personnel. Student internalization of values and attitudes and student susceptibility to influence by teachers may be directly related to the positiveness of students' attitudes toward school personnel. The results of several studies indicate that the more favorable students' attitudes toward cooperation, the more they believe that teachers, teacher aides, counselors, and principals are important and positive; that teachers care about and want to increase students' learning; that teachers like and accept students as individuals; and that teachers and principals want to be friends with students (Gunderson & Johnson, 1978; Johnson & Ahlgren, 1976; Johnson, Johnson, & Anderson, 1978). These findings hold in elementary, junior high, and senior high schools as well as in rural, suburban, and urban school districts. In suburban junior and senior high schools, student competitiveness becomes positively related to perceptions of being liked and supported personally and academically by teachers. Individualistic attitudes are consistently unrelated to attitudes toward school personnel. There are also several field experimental studies that demonstrate that students experiencing cooperative instruction like the teacher better and perceive the teacher as being more supportive and accepting, academically and personally, than do students experiencing competitive and individualistic instruction (Gunderson & Johnson, 1978; Johnson, Johnson, Johnson, & Anderson, 1976; Johnson, Johnson, & Scott, 1978; Johnson, Johnson, & Tauer, 1978; Tjosvold, Marino, & Johnson, 1977; Wheeler & Ryan, 1973).

Attitudes Toward Peers

Positive interpersonal relationships among students is necessary for both effective learning and for general classroom enjoyment of

instructional activities. Cooperative attitudes are related to liking for peers (Johnson & Ahlgren, 1976; Johnson, Johnson, & Anderson, 1978). There is evidence that cooperative learning experiences, compared with competitive and individualistic ones, result in greater liking for peers (Garibaldi, 1976; Gunderson & Johnson, 1978; Johnson, Johnson, Johnson, & Anderson, 1976; Johnson, Johnson, & Scott, 1978; Tjosvold, Marino, & Johnson, 1977). In addition, there is considerable evidence that cooperative experiences, compared with competitive and individualistic ones, result in more positive interpersonal relationships characterized by mutual liking, positive attitudes toward each other, mutual concern, friendliness, attentiveness, feelings of obligation to other students, and desire to win the respect of other students (see a review of these studies in Johnson & Johnson, 1975).

Besides liking for classmates, cooperative learning experiences, compared with competitive and individualistic ones, have been found to result in stronger beliefs that one is liked and accepted by other students, and that other students care about how much one learns and want to help one learn (Cooper, Johnson, Johnson, & Wilderson, 1977; Gunderson & Johnson, 1978; Johnson, Johnson, & Tauer, 1978; Johnson, Johnson, Johnson, & Anderson, 1976; Tjosvold, Marino, & Johnson, 1977). Cooperative attitudes are related to believing that one is liked by other students and wanting to listen to, help, and do schoolwork with other students (Johnson & Ahlgren, 1976; Johnson, Johnson, & Anderson, 1978). Individualistic attitudes are related to *not* wanting to do schoolwork with other students, with *not* wanting to help other students learn, with *not* valuing being liked by other students, and with *not* wanting to participate in social interaction (Johnson, Johnson, & Anderson, 1978; Johnson & Norem-Hebeisen, 1977).

One of the most important social problems facing our country is the prejudice toward groups and individuals who are in some way different from the middle-class white majority. There is a need for instructional strategies that will reduce prejudice among students while at the same time maximize achievement. There is evidence that cooperative learning experiences, compared with individualistic ones, promote more positive attitudes toward heterogeneity among peers (Johnson, Johnson, & Scott, 1978), and that cooperativeness is related to liking peers who are both smarter and less smart than oneself (Johnson & Ahlgren, 1976; Johnson, Johnson, & Anderson, 1978). There is evidence that when stigmatized students are placed in the regular classroom and study individualistically or in competition with the other students, interpersonal attraction will be based on perceived similarity; cooperative interaction, on the other hand, promotes greater liking for the stigmatized other despite any perceived differences (D. Johnson & Johnson, 1972; S. Johnson & Johnson, 1972).

In studies involving students from different ethnic groups, handicapped and nonhandicapped students, and male and female junior high school students, the evidence indicates that cooperative learning experiences, compared to competitive and individualistic ones, promote more positive attitudes toward members of a different ethnic group or sex and handicapped peers (Armstrong, Balow, & Johnson, 1977; Cooper, Johnson, Johnson, & Wilderson, 1977; Johnson & Johnson, 1978; Martino & Johnson, 1979; Rynders, Johnson, Johnson, & Schmidt, 1978). Stigmatized students were seen as being more valuable and smarter, as contributing to the learning of nonstigmatized students more frequently, were chosen to be part of learning groups and after school activities more frequently, were chosen as friends more frequently, and were sought out for interaction more often in after school situations after cooperative learning

experiences (compared with competitive and individualistic ones).

Self-Esteem

Schools are concerned with promoting self-esteem in students for a variety of reasons, which include psychological health and achievement in school and postschool situations. Our correlational studies indicate that cooperativeness is positively related to self-esteem in students throughout elementary, junior, and senior high school in rural, urban, and suburban settings; competitiveness is generally unrelated to self-esteem; and individualistic attitudes tend to be related to feelings of worthlessness and self-rejection (Gunderson & Johnson, 1978; Johnson & Ahlgren, 1976; Johnson, Johnson, & Anderson, 1978; Johnson & Norem-Hebeisen, 1977; Norem-Hebeisen & Johnson, 1977). There is also evidence that cooperative learning experiences, compared with individualistic ones, result in higher self-esteem (Johnson, Johnson, & Scott, 1978).

In a series of studies with suburban junior and senior high school students, Norem-Hebeisen and Johnson (1977) examined the relationship between cooperative, competitive, and individualistic attitudes and ways of conceptualizing one's worth from the information that is available about oneself. Four primary ways of deriving self-esteem are: *basic self-acceptance* (a belief in the intrinsic acceptability of oneself), *conditional self-acceptance* (acceptance contingent on meeting external standards and expectations), *self-evaluation* (one's estimate of how one compares with one's peers), and *real-ideal congruence* (correspondence between what one thinks one is and what one thinks one should be.) Attitudes toward cooperation are related to basic self-acceptance and positive self-evaluation compared to peers, attitudes toward competition are related to conditional self-acceptance, and individualistic attitudes are related to basic self-rejection.

Psychological Health

The ability to build and maintain cooperative relationships is often cited as a primary manifestation of psychological health, yet until recently there has been no evidence that it is so. Johnson and Norem-Hebeisen (1977) compared the attitudes of high school seniors toward cooperation, competition, and individualism with their responses on the Minnesota Multiphasic Personality Inventory. They found that attitudes toward cooperation were significant and negatively correlated with 9 of the 10 scales indicating psychological pathology. Attitudes toward competition were negatively correlated with 7 of the 10 scales indicating psychological pathology. Attitudes toward individualism were significantly and positively related to 9 of the 10 pathology scales. Since both cooperation and competition involve relationships with other people, while individualistic activities involve isolation from other people, these findings indicate that an emphasis on cooperative involvement with other people and on appropriate competition during socialization may promote psychological health and well-being while social isolation may promote psychological illness.

In addition, cooperative attitudes are positively related to emotional maturity, well adjusted social relations, strong personal identity, the ability to resolve conflicts between self-perceptions and adverse information about oneself, amount of social participation, and basic trust and optimism. Attitudes toward competition are related to emotional maturity, lack of a need for affection, the ability to resolve conflicts between self-perceptions and adverse information about oneself, social participation, and basic trust and optimism. Individualistic attitudes are

related with delinquency, emotional immaturity, social maladjustment, self-alienation, inability to resolve conflicts between self-perceptions and adverse information about oneself, self-rejection, lack of social participation, and basic distrust and pessimism.

The ability to build and maintain cooperative relationships is such an essential aspect of psychological health and social development that the authors have proposed a model of psychological health based upon cooperation theory and research (Johnson, 1975c, 1979).

Students' Attitudes Toward Interdependence

As part of the authors' efforts to evaluate affective outcomes of schooling and to provide educators and researchers with the tools needed to assess the level of students' cooperative, competitive, and individualistic attitudes, a series of attitude scales for general use in schools (Johnson & Norem-Hebeisen, in press) and for use in athletic programs (Johnson, Johnson, LaPoint, & Krotee, 1978) have been developed. Throughout the school years males have more competitive and less cooperative attitudes than do females (Ahlgren & Johnson, in press).

Teaching Methods

Despite theoretical justification, empirical support, the pleas of teacher educators, and the development of curricula, inquiry teaching has not been widely adopted by American educators. Indeed, Dewey's (1928) question is still relevant: "Why is it, in spite of the fact that teaching by pouring in, learning by passive absorption, are universally condemned, that they are still intrenched in practice?" In an attempt to provide one answer to Dewey's question the authors conducted a series of studies examining the effects of cooperation and competition on students' reactions to didactic versus inquiry teaching methods (R. Johnson, 1976; Johnson, Ryan, & Schroeder, 1974; Tjosvold, Marino, & Johnson, 1977; Wheeler & Ryan, 1973). Their results indicate that cooperative or competitive goal structures did not differentially affect student acceptance of and liking for didactic instruction, but inquiry instruction was much more liked and accepted when it was cooperative than when it was structured competitively. In general, furthermore, inquiry methods were viewed as more positive than were didactic teaching methods and cooperative instruction was better liked than competitive instruction.

Each of the outcomes of instruction discussed above are important. We have not yet discussed, however, the most important instructional outcome of all. It is to this outcome that we now turn.

Back To Basics: The Importance of Cooperative Learning Experiences

"No man is an island, entire of itself; every man is a piece of the continent, a part of the main."

John Donne

What is the most important thing for schools to teach students? What competencies are most vital for promoting future success in a career, in building and maintaining a family, in contributing to one's community, and in actualizing one's potentialities? The answer to these questions is that the most significant thing for students to learn is how to build and maintain positive relationships with other people in work, leisure, and family situations. Involving students in supportive and meaningful relationships with their classmates and members of the school staff is probably the most important thing schools can do for students.

The importance of cooperative learning experiences goes beyond improving instruction and making life easier and more productive for teachers, although these are worthwhile activities. Cooperation is as basic to

humans as the air we breathe. The ability of all students to cooperate with other people is the keystone to building and maintaining stable families, career success, neighborhood and community membership, important values and beliefs, friendships, and contributions to society. *Knowledge and skills are of no use if the student cannot apply them in cooperative interaction with other people.* It does no good to train an engineer, secretary, accountant, or teacher, if the person does not have the competencies needed to apply their knowledge and technical skills in cooperative relationships on the job, in the family and community, and with friends. The most logical way to emphasize cooperative competencies as learning outcomes is to structure the majority of academic learning situations cooperatively. There is no aspect of human experience more basic and important than cooperating with others. *Going back to basics in education means going all the way back to the socialization of students into the competencies needed for cooperating with other people.*

There is a second reason why cooperative learning experiences are important. Schools, like all social organizations, are based on cooperation among people. What would happen if students and school personnel refused to speak the same language, refused to attend classes at the same time, refused to gather in the same building, did not coordinate their actions, or arrived at school randomly during the day and night? Usually we assume that such basic cooperation is going to take place and it is only when such basic cooperation breaks down that it is noticed. Schools cannot operate if students and school personnel do not cooperate to achieve educational goals.

Using All Three Goal Structures Appropriately

From a pragmatic point of view, cooperation should be used much more frequently in instruction situations than competitive and individualistic goal structures. Cooperation is the goal structure than should be used the majority of the time in school and should provide the overall context for learning. Whenever it is important for students to be motivated, involved, and attending whenever it is important to master, retain, and apply knowledge and skills, and whenever positive student attitudes are desired, cooperation should be used. Perhaps the only limitations on the use of cooperation is when a task is very simple and can be completed without any assistance from another person. Despite the broad effectiveness of cooperative learning, however, the authors are firmly convinced that the supplemental use of competitive and individualistic goal structures in the classroom is important.

If students can compete for fun and enjoyment, win or lose, competitive drills are an effective change of pace in the classroom. The conditions under which competition can be productively used are (Johnson & Johnson, 1975):

1. When it is relatively unimportant whether one wins or loses. Winning cannot be a life or death matter if competition is to be enjoyed. High levels of anxiety appear when winning becomes too important, along with all the destructive consequences of competition noted by the research.
2. All students should perceive themselves as having a reasonable chance of winning. Motivation to achieve is based on the perceived likelihood of being able to achieve a challenging goal. If students believe they have little chance of winning, they will not compete. By arranging a class into small clusters of evenly matched students, teachers can provide a challenging and realistic competition among students and maximize the number of winners in the class at the same time.

3. Clear and specific rules, procedures, and answers are an absolute necessity. Ambiguity ruins competition, as too much time is spent worrying about what is fair and unfair, what the procedures actually are, and whether or not the answers are correct.
4. All students need to be able to monitor the progress of their competitors during the competition, that they know whether they are ahead or behind. In competition, the only way students can judge their progress is by comparing themselves with their competitors. In athletic events there is a scoreboard to keep players posted. Successful classroom competition requires the same sort of feedback.

Individualistically structured learning activities can supplement cooperation through a division of labor in which each student learns material or skills to be used in cooperative, problem-solving activities. The conditions under which an individualistic goal structure can be productively used are (Johnson & Johnson, 1975):

1. Each student has adequate individual space to study within and all the necessary materials to complete the work individually. Each student has to be a separate, self-contained learner.
2. The directions need to be clear and specific so that students do not need further clarification on how to proceed and how to evaluate their work. In an individualistic situation the teacher is the major resource for all students. If several students need help or clarification at the same time, work grinds to a halt.
3. Students see the task as relevant and worthwhile. Self-motivation is a key aspect of individualistic efforts. The more important students perceive the learning goal, and the more challenging the task, the more motivated they will be to learn. Learning facts and simple skills to be used in cooperating with peers increases the perceived relevance and importance of individualistic tasks.

A cooperative goal structure is appropriate for almost all instructional activities in the school. There are conditions, however, when competitive and individualistic goal structures provide useful and productive supplements to cooperative learning.

The Teacher's Role in Cooperative Instruction

While the procedures for implementing competitive and individualistic goal structures within instructional activities are commonly used by most teachers, the teacher's role in cooperatively structured learning is often left ambiguous. The teacher's role in cooperative instruction, therefore, is briefly reviewed in this section. For a more thorough discussion of the teacher's role in structuring learning cooperative, and in using competitive and individualistic goal structures to supplement cooperative learning, see Johnson and Johnson (1975).

The essence of cooperative learning is assigning a group goal, such as producing a single product or achieving as high a group average on a test as possible, and rewarding every group member on the basis of the quality or quantity of the group product according to a fixed set of standards. The teacher establishes a group goal and a criteria-referenced evaluation system, and rewards group members on the basis of their group performance. Teaching a cooperative lesson, however, involves more than just setting up a cooperative goal structure. Here is a brief summary of the teacher's role in cooperative instruction:

1. As far as possible, specify the instructional objectives.
2. Select the group size more appropriate for the lesson. With young students the size of the group may need to be two or three members. With older students larger groups are possible. The optimal

size of a cooperative group will vary according to the resources needed to complete the lesson or project (the larger the group the greater the resources available), the cooperative skills of group members (the less skillful the group members, the smaller the group should be), and the nature of the task.

3. Assign students to groups. Usually, teachers will wish to maximize the heterogeneity in the group. Random assignment usually ensures a good mixture of males and females, high verbal and passive students, leaders and followers, and enthusiastic and reluctant learners. Sometimes teachers may want to let students choose who they want to work with. And sometimes teachers may wish to group students around their interests. Often teachers may wish to assign students to groups so that students high, low, and average in expertise are in the same group.
4. Arrange the classroom. Teachers will wish to cluster the groups of students so that they will not interfere with each other's learning. Within the groups, students should be able to see the relevant materials, converse with each other, and to exchange materials and ideas. Usually a circle is best, and long tables should be avoided.
5. Provide the appropriate materials. When students are first learning how to cooperate, or when some students are having problems in contributing to the group's work, teachers may wish to arrange the materials like a jigsaw puzzle and give each group member one piece. A group, for example, could be writing a report on Abe Lincoln, with each member having material on a different part of his life. In order for the report to be completed, all group members will have to contribute their material and ensure it is incorporated into the group's report.
6. Explain the task and the cooperative goal structure. The task may be the successful completion of an assignment in math, science, language arts, or social studies. To explain the cooperative goal structure teachers will need to communicate that there is a group goal, a criteria-referenced evaluation systems, and all group members will be rewarded on the basis of the quality of the group's work.
7. Observe the student-student interaction. Just because the teacher asks students to cooperate with each other does not mean they will always do so. Much of the teacher's time in cooperative learning situations will be spent observing student groups to see what problems they are having in functioning cooperatively. For specific procedures for observing, and for specific observation instruments, see D. Johnson and R. Johnson (1975) and D. Johnson and F. Johnson (1975).
8. Intervene as a consultant to help the group solve its problems in working together effectively and to help group members learn the interpersonal and group skills necessary for cooperating. These skills are detailed in Johnson (1972, 1978) and D. Johnson and F. Johnson (1975) along with activities to be used in teaching them.
9. Evaluate the group products, using a criteria-referenced evaluation system. The procedures for setting up and using such an evaluation system are given in Johnson and Johnson (1975).

Implications for Classroom and School Environments

In light of the research findings, there is little doubt that the teachers who master the strategies needed to set up appropriate goal structures in their classrooms and maximize the use of the cooperative goal structure will have a powerful and positive effect on their classroom learning environment. This addition to the teachers' repertoire doesn't mean a new

curriculum. It only takes a few minutes to make clear to students the kind of student-student interaction expected, with some additional time needed in the beginning to teach the appropriate interaction skills to students. All teachers are interested in the achievement gains promised by the research findings, and perhaps even more the positive attitudes and gain in social skills for their students. The initial effort on the teachers' part and the time needed to structure student-student interaction carefully are effort and time well spent. It would be exciting to see the gap between the research findings and traditional classroom practice disappear so that students would reply to the question "How do you see school?," by saying, "School is a place where we work together to learn and share our ideas: argue our point of view unless logically persuaded otherwise: help each other find the most appropriate answers: and sometimes we have fun competitions or work on our own, but most of the time we learn together."

The effect on the school environment could be just as dramatic as the effect of goal structuring on classrooms. To a large extent the school environment is the sum of the classroom environments within the school. How each child and his parents view school is what they see happening in their classrooms, how they perceive the classroom teacher and the other students in the room. When the student-student interaction is predominantly cooperative in most of the classrooms, the school environment will reflect the positive outcomes of the classrooms. It is also natural for teachers instructing students in the use of cooperative skills to be more inclined to use them when interacting with other staff members. Such teachers may also develop more of a feeling of mutuality with other teachers. Visualize a school where teachers say, "School is a place where we work together and share our ideas, help each other, and argue our point of view openly and honestly in the context of finding the most appropriate solutions to our common problems."

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